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ABSTRACT

This report reviews and synthesizes the findings of the survey and fieldwork as presented in Volumes II and III. In particular, it summarizes the evidence concerning the effects of federal change agent policy. Section 1 introduces the report. Section 2 describes the theoretical approach that served as the basis for data collection and analysis. Sections 3 and 4, respectively, present findings about the innovative process and about the factors affecting implementation and continuation. These sections do not present the actual analyses but use footnotes to refer to evidence presented in the other volumes. Section 5 goes beyond immediate data to raise questions about the policy instruments used in federal change agent programs. These policy implications are tentative for several reasons. First, this report presents only the findings of the first year of a two-phase study. Second, this is exploratory research--in effect the work consists of hypotheses that require more refined testing. Nonetheless, since policy can seldom afford the slow pace of scientific confirmation, conclusions supported by both the evidence and experience are offered. (Author)

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FEDERAL PROGRAMS SUPPORTING EDUCATIONAL CHANGE, VOL. IV: THE FINDINGS IN REVIEW

PREPARED FOR THE U.S. OFFICE OF EDUCATION,
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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PREFACE

Rand is conducting, under the sponsorship of the U.S. Office of Education, a several-year study of federally funded programs designed to introduce and spread innovative practices in public schools. These change agent programs normally offer temporary federal funding to school districts as "seed money." If an innovation is successful, it is assumed that the district will continue and disseminate part or all of the project using other sources of funds. The Rand study examines four such federal change agent programs—Elementary and Secondary Education Act Title III, Innovative Projects; Elementary and Secondary Education Act Title VII, Bilingual Projects; Vocational Education Act, 1968 Amendments, Part D, Exemplary Programs; and the Right-To-Read Program. The study identifies what tends to promote various kinds of changes in the schools and what doesn't; in particular, the Rand study will identify for federal, state, and local policymakers the nature, permanence, and extent of dissemination of innovations that are associated with the various federal programs and with various federal, state, and local practices.

A series of five reports describes the results of the first year of the Rand study (July 1973 to July 1974). Volume I (R-1589/1-HEW, *A Model of Educational Change*) provides a theoretical perspective for the Rand study by analyzing the current state of knowledge of planned change in education and by proposing a conceptual model of factors affecting change processes within school districts.[1]

Volume II (R-1589/2-HEW, *Factors Affecting Change Agent Projects*) contains the analysis of survey data collected from a national sample of 293 projects in 18 states during November and December 1973.

Volume III (R-1589/3-HEW, *The Process of Change*) summarizes the results of 29 case studies of change agent projects conducted by Rand staff members and consultants in 25 school districts during April and May 1974. These case studies were chosen from the original sample of 293 projects initially surveyed. Volume III also describes the role of state education agencies in choosing and disseminating the change agent projects.

Four technical appendixes to Vol. III describe in detail the federal program management approach, state education agency participation, and case studies for each of the programs in the study: Title III, App. A; Reading, App. B; Bilingual Education, App. C; and Career Education, App. D. Appendix A should be of particular interest to researchers or practitioners concerned with the introduction of new approaches to classroom instruction.

This report, Vol. IV of the series, summarizes the findings of Vols. I, II, and III, and also synthesizes extensive data collected by Rand on federal-level program strategy and management for each of the change agent programs. Volume IV also includes a discussion of alternative federal strategies for promoting innovation.

Volume V (R-1589/5-HEW, *Executive Summary*) presents a distillation of the study's methods and results for a general audience.

Subsequent research will collect additional data on Titles III and VII of ESEA, with particular focus on projects whose federal funding has expired.

[1] Because of Rand's interest in advancing knowledge of organizational behavior in educational institutions, the research underlying this report was supported in part by an allocation of Rand corporate research funds.

SUMMARY

BACKGROUND

This is a report on the first year (July 1973 to July 1974) of Rand's work in a study of four federal programs (ESEA Title III; ESEA Title VII; Vocational Education, 1968 Amendments, Part D; and Right-To-Read) aimed at promoting educational change in the public schools by paying for the costs of innovative projects for a trial period. This study, commissioned by the U.S. Office of Education, aims to help improve the ways that policies are made and carried out by describing how the process of innovation operates for these projects and by trying to account for the factors that affect their outcomes. The second phase of the work, covering the 1974-75 and 1975-76 school years, will investigate how innovative projects are continued and spread after federal support ends.

The four programs rest on common assumptions, but each has its own focus and management strategy. The common assumptions are:

- American education should be doing better with respect to a variety of goals.
- Educational practices can be improved within the existing educational structure.
- Change can be introduced and sustained by providing "seed money" to some districts to encourage innovations that, if successful, will be continued in the original sites and will be adopted selectively by other schools and districts.

Each of the programs is also distinct:

- *Title III* (funded at approximately $150 million annually in recent years) has the broadest aims. It is designed to encourage educational improvement at the school and district level by introducing new practices and by spreading existing model practices to districts that are not aware of them. In recent years 85 percent of the funding has been state-administered, and the remaining 15 percent directly administered by USOE.
- *Right-To-Read* ($12 million annually) seeks to create a national educational priority for reading, particularly among disadvantaged students. This study focuses on one aspect of the program, administered by USOE—demonstration projects at the school level.
- *Vocational Education, Part D* ($16 million annually) was designed to create exemplary programs that would enhance career awareness and readiness. Half of the funds are administered directly by USOE and the balance by the states.
- *Title VII, Bilingual Education* ($45-$85 million annually) is aimed at providing model projects for children [illegible]ited English-speaking ability, and also to maintain and encourage "cultural pluralism" in American education, with strong political support from many people of Spanish-language origin.

THE RAND STUDY

In light of numerous findings that have raised questions about the effectiveness and transferability of educational innovation, USOE asked Rand to focus on four questions in the change agent study:

- How should the nature and extent of innovation and dissemination of change in the public schools be assessed?
- How do school districts select, introduce, implement, incorporate, and spread different kinds of innovations?
- How do differences in the federal programs, in project characteristics, and in local settings affect how projects are begun, carried out, continued on local funds, and disseminated?
- What should federal policies be toward educational innovation in light of the political, financial, and organizational constraints that the federal government faces in its dealings with the public schools?

The research design for the first year of the study approached these issues through four major research tasks:

1. An extensive review of the literature on educational innovations, leading to development of a theoretical approach toward the subject that serves as the basis for data collection and analysis.
2. A nationwide survey in 18 states of 293 change agent projects, each in its last or next to last year of federal funding. The survey, conducted for Rand by the National Opinion Research Center in December 1973 and January 1974, included personal interviews with 1735 people at all levels in the school district, from superintendent to classroom teacher. It sought to find out what factors influence the outcomes of change agent projects. These survey data, supplemented by school district data, were analyzed using such statistical procedures as multiple regression and factor analysis.
3. Field studies conducted in April and May 1973 by Rand staff at 29 projects, drawn from the survey sample. The staff observed the projects in operation in classrooms and schools and interviewed project participants and district officials in order to understand how the innovative process worked. The fieldwork sample was drawn so as to provide a comparison of similar innovations operating in different local settings and supported by different federal programs. In particular, the fieldwork cases included classroom organization, staff development, reading, bilingual, and career education projects.
4. Rand staff interviews with federal and SEA officials who work on the four change agent programs. These included telephone interviews with 54 SEA officials in 18 states, visits to 9 SEAs for more detailed personal interviews, and a series of personal interviews with officials at USOE and the Department of Health, Education, and Welfare (HEW).

In the final phase of the work (November 1974 to September 1976), Rand will examine what happens to projects in the two largest change agent programs when federal funding stops. The work will again be based on surveys and field studies and will include Title III and Title VII projects that were visited during 1973-74. This

phase of the work will allow us to test the first-year findings and will also allow us to test hypotheses about continuation and dissemination that were not explored during the first year.

THE RESEARCH APPROACH

As part of its first major task, Rand reviewed the literature on educational innovations and found that the past decade of federal efforts to stimulate change in local school systems has led to disappointing results. This apparent disappointment may be due less to inadequate educational technologies or treatments than to the way these promising treatments were implemented in the local institutional setting. We concluded that an essential issue for policymakers promoting change was to develop a systematic understanding of implementation.

Therefore, to guide the research, we focused on: (1) developing a model of the innovative process that centered on implementation, (2) defining outcome measures that assess the effectiveness of implementation and the extent to which the change agent projects meet the policy goals of project continuation and dissemination, and (3) identifying factors affecting the innovative process and, consequently, the outcomes of innovative projects.

The Model of the Innovative Process

The model hypothesized three stages in the life of an innovative project:

- *Initiation,* when LEA officials plan projects and decide which ones to support.
- *Implementation,* when the project confronts the reality of the institutional setting and project plans must be translated into practice. We hypothesize that effective implementation requires *mutual adaptation* between the project as planned and the institutional setting, in which each must adjust to the demands of the other.
- *Incorporation,* when the innovative practice loses its "special project" status and becomes part of the routinized behavior of the district. In this phase the project may be continued in whole or in part as a result of deliberate district decisions, or aspects of the innovation may be incorporated by individual teachers with or without formal district support.

Defining Outcomes

Because innovative projects must be implemented before they can affect students and because they are seldom implemented as planned, we defined project "outcomes" that measured the effectiveness of implementation:

- *Perceived success:* the relative extent to which project participants believed that goals were achieved.
- *Change in behavior:* the type and extent of change in teacher and administrator behavior as perceived by participants.
- *Fidelity of implementation:* the extent to which the project was implemented as originally planned.

We used another policy-relevant project "outcome" involving the incorporation stage:

- *(Expected) continuation:* the extent to which the LEA continued project activities after federal funds were withdrawn.[1]

Factors Affecting Implementation and Continuation

We hypothesized that project outcomes are largely determined by the interplay among characteristics of the project, the institutional setting, and federal policies. We developed measures for each of these factors, which were used to determine their relative effects on project outcomes.

FINDINGS

Our findings fall into two categories: those relating to the process of innovation and those relating to factors affecting the innovative process and, as a consequence, project outcomes.

The Process of Innovation

During the initiation stage, the interaction of several factors tended to result in initiation processes that could be characterized either as opportunistic (designed primarily to take advantage of the availability of external funding, with relatively little LEA commitment to project goals) or as problem solving (when the project was seen as helping to meet local needs in light of present and expected future realities). The motivation that characterized opportunism or problem solving had pervasive effects on implementation and incorporation.

Our evidence suggests that the "search for alternatives" traditionally assumed to be characteristic of the problem-solving approach to innovation did not occur. In developing projects, LEAs used information or treatments that were already known to local district personnel. This may mean that LEA staff intuitively feel that the success and suitability of an innovation depend primarily on local conditions, a view that our evidence supports. Thus, local administrators are likely to be skeptical about the reported "success" of educational methods in other districts and tend *to rely on* the advice of local professionals who have a thorough knowledge of particular local conditions.

The *implementation* stage was not a simple application of a well-defined technology to a well-understood setting. Instead, it implied complex and only partly predictable interactions between the project and the setting. During this stage, projects that were likely to be implemented effectively were characterized by mutual adaptation in which the innovation was modified, and the formal and informal organizational relationships among staff and among teachers and students were altered. In other cases, implementation did not occur. Instead, projects were "implemented" in pro forma fashion, or simply broke down and were not implemented at

[1] In the first year of the Rand change agent study, we examined projects in their last years of federal funding, and hence were able to measure only *expected* continuation.

all, or were coopted by project participants so that the project was changed to fit traditional patterns.

The type of implementation process—mutual adaptation, cooptation, pro forma implementation, or breakdown—that characterized a project depended on three considerations: the motivations and circumstances involved in the project's initiation, its substance and scope of change being attempted, and its implementation strategy. Mutual adaptation occurred only in problem-solving projects, notably in such projects as open classroom that were highly complex and required considerable behavioral change on the part of teachers and administrators.

Incorporation could take place in different forms, ranging from assimilation of new practices by the project staff, with no formal LEA continuation decision required, to a conscious decision by the district to commit resources and support to extend the project to all or part of the district.

At the classroom level, projects that replaced existing practice were more likely to be incorporated than those that supplemented the existing curriculum. Incorporation was more likely under the following conditions: an emphasis on training rather than on the introduction of new technology, training focused on practical classroom issues rather than on theoretical concepts, and local development of materials rather than reliance on outside consultants. Effects of federal programs on expected incorporation were indirect. Because projects with extensive provision for training and staff development, such as some Title III classroom reorganization and staff development innovations, were most likely to have lasting effects on the staff, programs funding these innovations indirectly fostered incorporation.

At the district level, continuation decisions were based on how LEA officials perceived the project—whether it was (1) "successful," (2) affordable, (3) important to the district's priorities, and (4) politically acceptable. In the case of opportunistic projects, the answer to the first three points was usually negative, while in the case of problem-solving projects the answer to all four was often positive—in effect, the pattern of expected continuation tended to follow the pattern evidenced during initiation. It is important to note that the superintendents' perception of project "success" seemed to reflect attitudes formed during initiation rather than after evaluation, which was seldom considered seriously.

Factors Affecting Implementation and Continuation

The following variables were considered to be factors that might affect implementation and continuation:

1. Project characteristics (educational treatment, resource level, substance and scope of proposed change, and implementation strategy).
2. Institutional setting (organizational climate and characteristics of principal actors).
3. Federal policies.

The project characteristics having important effects on implementation outcomes and continuation were the project's implementation strategies (i.e., the decisions made as to how the innovation would be implemented) and the substance and scope of the proposed organizational change. Effective implementation strategies included on-line planning, practical staff training, local development of materials, and a "critical mass" of staff working on the project so that the individual innovation

did not become too isolated. In respect to substance and scope of change, the most important elements were: (1) centrality (the perceived educational priority to the LEA); (2) a requirement for change in teacher behavior; (3) comprehensive new treatments that were complex in that they required a number of changes by a number of actors; and (4) consonance between the values and goals of the project and those of the staff and the district.

Other project characteristics, such as resource level and type of educational treatment or technology, had relatively little effect on project outcomes.

The *institutional setting* is a crucially important factor in effective implementation. The key elements were high teacher morale, support from the principal and from district administrators, and teacher willingness to make extra efforts. These conditions made initial adaptation more likely, and tended to occur more frequently in elementary schools than in high schools.

A receptive institutional setting provides explicit, steady support for change agent efforts and is a necessary but not sufficient condition for effective implementation. Mutual adaptation—which we believe is the key to serious change—requires an effective implementation strategy, one that takes advantage of institutional support. Indeed, the components of the implementation strategy that we found to be most effective—adaptive planning, staff training keyed to the local setting, and local material development—were those that enabled the support and commitment of administrators and staff to be fully engaged.

Federal policies primarily affected only the initiation stage by inducing adoption of innovations in areas of federal concern. But these initial influences did not have major effects on those factors in the setting and in the project that mostly determine the course and outcomes of the innovation. Consequently, federal policies had little influence on effective implementation and outcomes.

Because the policy common to the federal change agent programs had limited influence on the innovative process, each federal program could affect project outcomes only at the margin. Within this latitude, the differences in management strategies of the programs were related to significant but statistically small effects on implementation and project outcomes.

Conclusion

Our data show that a receptive institutional setting is a necessary but not sufficient condition for effective implementation. An implementation strategy that promotes mutual adaptation is critical.

The main factors affecting innovations were the institutional setting, particularly organizational climate and motivations of participants; the implementation strategy employed by local innovators to install the project treatment; and the scope of change implied by the project relative to its setting. Neither the technology nor the project resources nor the different federal management strategies influenced outcomes in major ways. Thus, project outcomes did not depend primarily on "inputs" from outside but on internal factors and local decisions.

TENTATIVE POLICY IMPLICATIONS

Our first-year research suggests that the following premises express the realities of LEA behavior in the innovative process:

1. Implementation—rather than the adoption of a technology, the availability of information about it, or the level of funds committed to it—dominates the innovative process and its outcomes.
2. Effective implementation depends on the receptivity of the institutional setting to change.
3. Effective implementation is characterized by the process of mutual adaptation.
4. Local school systems vary in their capacity to deal with innovations and with the stages of the innovative process.

The policy implications of these four premises are:

1. Policy should be concerned with more than the mere adoption of change agent projects. Federal change agent policy clearly stimulated the initiation of special projects, but had little effect on the quality or seriousness of the implementation efforts.
2. The critical significance of the institutional setting should come as no surprise to policymakers. If educational technologies are not altered and adapted to local conditions, they are ineffective; information about practices elsewhere seldom goes beyond the level of simple awareness; federal money is used for its intended purpose only if the federal purpose is congruent with local plans.

   School districts use external inputs, but typically are not influenced by them to change their commitments, motivations, or concern with innovation; unless the institution is receptive to change, it is unlikely to be stimulated by these policy instruments. We believe that policies could be designed to enhance receptivity to change.
3. If, given a receptive institutional setting, a project's outcomes depend critically on local decisions about how the project will be implemented, federal policymakers might consider ways of encouraging mutual adaptation strategies, which we believe are the key to effective implementation.
4. Federal change agent programs generally awarded fixed-term grants regardless of the school districts' ability to introduce and sustain the particular innovations represented in their proposals. Yet we observed similar innovations being approached and installed very differently by school districts according to their capacities to innovate. Rather than making blanket awards of a fixed number of years, federal change agent policies might be keyed to the stages of innovation and might promote the development of the school districts' capacity to deal with each stage.

Generally speaking, there appear to be many possibilities for federal policy to affect the innovation process despite its essentially local nature and the autonomy of school districts. Each possibility for federal leverage raises problems. This interim report offers our preliminary thoughts about new policy directions. But, more important, it tries to provide some information and hypotheses that would help policymakers balance the possibilities and the problems that arise from federal efforts to help schools change themselves.

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This report synthesizes and interprets research in which our colleagues Peter W. Greenwood, Dale Mann, and Edward W. Pauly played a major role. We would like to acknowledge their substantive contributions.

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We owe a major debt to P. Michael Timpane and Daniel Weiler who offered perceptive and critical reviews that helped shape the final report. Ann Bezdek, the current Project Officer of this work for the U.S. Office of Education (USOE), not only showed patience and understanding throughout the research but offered many substantive comments on this report that assisted us in learning about the policy issues facing USOE. All these contributors improved this report without in any way being responsible for its shortcomings.

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I. INTRODUCTION

The Rand change agent study, commissioned by the U.S. Office of Education, examines four federally sponsored programs that are trying to promote educational change in the public schools by paying for the costs of innovative projects for a trial period. By examining the process of innovation and by analyzing those differences in federal programs, in project characteristics, and in local settings that affect innovation, the study aims to provide basic information for the formulation of change agent policy.

This volume is a review of the findings of the first year of Rand's work (July 1973 to July 1974). It also presents some preliminary ideas about what the first year's findings may mean for future change agent policy. The second phase of the work, covering the 1974-75 and 1975-76 school years, will investigate how innovative projects are continued and spread after federal support has ended.

BACKGROUND OF THE CHANGE AGENT STUDY

During the 1950s and 1960s, three important initiatives, the National Defense Education Act of 1958, the Elementary and Secondary Education Act of 1965, and the legislative modernization of the federal vocational education program in 1963 and 1968, defined a new federal role in elementary and secondary education—large-scale support of federally mandated programs aimed at specified goals: subsidizing special curriculum development, educating the disadvantaged, training young people for careers, broadening access to higher education, and encouraging innovation in the public schools.

Promoting innovations, which is the subject of this study, accounts for approximately 10 percent of the federal aid to public schools which currently exceeds $3.5 billion annually. The U.S. Office of Education spends most of these funds through a number of avenues, one of which includes the so-called change agent programs analyzed in this study:[1]

Elementary and Secondary Education Act Title III, Innovative Projects ($150 million annually)
Elementary and Secondary Education Act Title VII, Bilingual Projects ($45 million)
Vocational Education Act, 1968 Amendments, Part D, Exemplary Programs ($16 million)
Right-To-Read ($12 million)

Each of the change agent programs has a distinct focus and management strategy. The largest of the programs considered here, Title III, is designed to improve the quality of public education both by introducing model practices that are new to

[1] Other federal programs, not studied here, also aim at encouraging innovations—for example, certain programs for handicapped students, experimental schools, educational voucher demonstrations, Follow Through, and elements of the Emergency School Assistance Act.

American education and by spreading existing successful practices to schools that are not aware of them. The competition for Title III grants of three-year duration is open to almost any kind of project that local schools wish to propose. In 1973-74, the first year of our study, 15 percent of all Title III money was granted directly to local education agencies (LEAs) by the Office of Education, and the remaining funds were allocated to state education agencies (SEAs), who in turn made grants to LEAs.

Other federal change agent programs are more narrowly targeted and have more specific funding criteria. Right-To-Read, for example, represents an attempt by the Office of Education to create a national educational priority for reading, particularly among disadvantaged students. The Right-To-Read demonstration projects, which are the program component addressed in this study, fund LEAs to use a Right-To-Read planning and management approach to carrying out reforms in reading instruction. Vocational Education, Part D, was designed to create exemplary programs that would enhance career awareness and readiness. Congress allotted half of the Part D, Exemplary Program funds to USOE to fund local projects directly; the other half of the appropriations is allotted to the SEAs.

Title VII (Bilingual Education) originally sought to provide model projects for the special needs of children whose English-speaking ability was limited. The program has subsequently also developed into an effort to maintain and encourage "cultural pluralism" in American public education, with strong political support from many persons of Spanish-language origin.

Despite these differences in focus and management strategy, the change agent programs have a common purpose: the stimulation and spread of educational innovations. They also have a common policy instrument: the provision of temporary funds (3 to 5 years) which, although small relative to the budget of a school district (ranging from grants of $10,000 or less to several hundred thousand dollars per year), are intended to fund new educational services, not to support existing practice.

These programs also rest on common assumptions. They all assume more or less explicitly that American education should be doing better with respect to a variety of goals ranging from specific objectives, such as student reading achievement, to the broad concerns of student personality and social development. They also assume that educational practices, procedures, and methods can be improved within the existing educational structure. Federal change agent policy rests on the idea that providing funds to a relatively small number of districts to try innovations will demonstrate the value of some of these innovations and thus induce other districts to adopt them selectively.

These federal change agent policies are just a sample of many federal efforts to promote change in local educational practices over the past decade. A good deal of time, money, and research energies have been spent on evaluating these efforts.[2] This evaluation research, which can be criticized as invalid because of profound measurement problems, points to two general findings:

- Variations in student outcomes have not been consistently related to variations in treatments, once nonschool factors are held constant.
- "Successful" projects have lacked stability and have not been easy to "export" from school to school or district to district.

[2] Volume I of this study reviews the literature.

These disappointing findings have raised serious questions about the usefulness of federal efforts to promote innovation in the schools, and, more generally, about the prospects for educational reform.

STUDY DESIGN

In light of these findings, and of the federal government's own questions about the assumptions underlying change agent programs, USOE asked Rand in June 1973 to study projects funded by the four programs,[3] focusing on the process of innovation and the factors affecting innovation. In particular, we were asked to treat the following questions:

- How should the nature and extent of innovation and dissemination of new practices in the public schools be assessed?
- How do school districts select, introduce, implement, incorporate, and spread different kinds of innovations?
- How do differences in the federal programs, in project characteristics, and in local settings affect how projects are begun, carried out, continued on local funds, and disseminated?
- What should federal policies be toward educational innovation in light of the political, financial, and organizational constraints that the federal government faces in its dealings with the public schools?

To examine these questions, we developed a research design for the first year of the study, which included literature review, development of theory, data collection, analysis of data, and preparation of the first-year reports. The tasks, described fully in App. A, were as follows:

1. An extensive review of the literature on educational innovations, leading to development of a theoretical approach toward the subject that served as the basis for data collection and analysis.[4]
2. A nationwide survey in 18 states of 293 change agent projects, each in its last or next to last year of federal funding. The survey, conducted for Rand by the National Opinion Research Center of the University of Chicago in December 1973 and January 1974, included personal interviews with 1735 people at all levels in the school district, from superintendent to classroom teacher. It sought to find out what factors influence the outcomes of change agent projects. The personal interviews elicited information and opinions about factors affecting change agent projects—project characteristics, organizational features and personal relationships within the schools and the district, and federal program effects. In addition, project participants were asked about their perceptions of a variety of project "outcomes." These survey data, supplemented by school district data, were analyzed using such statistical procedures as multiple regression and factor analysis.[5]

[3] In this report, we refer to *programs* when describing the federal change agent initiatives, for example, Right-To-Read. We refer to *projects* when describing the particular innovation selected by a school district.

[4] See Vol. I.

[5] See Vol. II for a description of the survey instruments, the sampling procedure, the nature of the Rand sample, and the statistical analyses.

3. Field studies conducted in April and May 1973 by Rand staff at 29 projects, drawn from the survey sample. The staff observed the projects in operation in classrooms and schools and interviewed project participants and district officials in order to understand how the innovative process worked. The fieldwork sample was drawn so as to provide a comparison of similar innovations operating in different local settings and supported by different federal programs. In particular the fieldwork cases included classroom organization, staff development, reading, bilingual, and career education projects.[6]
4. Rand staff interviews with federal and SEA officials who work on the four change agent programs. These included telephone interviews with 54 SEA officials in 18 states, visits to 9 SEAs for more detailed personal interviews, and a series of personal interviews with officials at USOE and the Department of Health, Education, and Welfare (HEW).[7]

CONTENTS OF THIS REPORT

This report reviews and synthesizes the findings of the survey and fieldwork as presented in Vols. II and III, respectively. In particular, it summarizes the evidence concerning the effects of federal change agent policy. Appendix B describes the diverse management strategies and different priorities of the federal programs. Section IV compares these programs in terms of their effects on project outcomes. But our primary interest is to use these comparisons to cast light on the effectiveness of the policy instruments underlying the change agent programs. Indeed, we are specifically not evaluating the management of these programs, nor are we dealing with the larger social and political goals for which they were instituted. We focus on the innovative process at the local level and ask how these federal programs affected the local projects.

Section II describes the theoretical approach that served as the basis for data collection and analysis. Sections III and IV, respectively, present findings about the innovative process and about the factors affecting implementation and continuation. Because this report is a summary of other volumes of the Rand change agent study, these sections do not present the actual analyses but use footnotes to refer to evidence presented in the other volumes.

Section V goes beyond our immediate data to raise questions about the policy instruments used in federal change agent programs. These policy implications are tentative for several reasons. First, this report presents only the findings of the first year of a two-phase study. Our final report will have the benefit of one more year of research, as well as comments and criticism from federal, state, and local policymakers. Second, this is exploratory research—in effect our work consists of hypotheses that require more refined testing. Nonetheless, since policy can seldom afford the slow pace of scientific confirmation, we do offer conclusions that both the evidence and our experience support.

[6] See Vol. III for an analysis of the fieldwork data and its appendixes for the case studies.

[7] The appendixes to Vol. III contain brief summaries of this work.

II. THE THEORETICAL APPROACH

The literature on educational evaluations generally agrees that federal efforts to promote innovations have resulted in little consistent or stable improvement in student outcomes. The debate about the reasons for this apparent failure centers on four explanations:

1. Schools are already having the maximum possible effect; new practices, then, cannot be expected to make a difference.
2. Innovative ideas and technologies tried thus far are inadequate or underdeveloped; more R&D is needed.
3. Change in student outcomes *has* occurred, but the measurement and analyses are inappropriate or insensitive.
4. Innovative practices are not implemented as planned.

In our view, the first and second points cannot be judged because, as the third explanation maintains, evaluations of innovations are beset with conceptual and methodological problems of knowing what to measure and of measuring it validly. However, these research difficulties only confound the fundamental problem, which is suggested by the fourth explanation: The bridge between a promising idea and its impact on students is implementation, but innovations are seldom implemented as planned.

Thus, innovations may result in disappointing outcomes not because of inadequacies of the innovative idea but because of the difficult and uncertain process of implementing innovative efforts in an educational system that resists change.

Moreover, implementation involves complex organizational processes that may result in significant modifications in the planned innovation. Experience suggests that innovative projects *mutate* during implementation—that is, they change over time within sites—and, moreover, that they display considerable variability from one institutional setting to another.[1] Thus, the adoption of an innovation cannot be assumed to provide an accurate forecast of its actual use. In this situation, it may be misleading and of little help to policymakers to examine the relationship between treatment and student outcomes without *first* having a systematic understanding of implementation.

Based on these considerations, we concluded that to guide our research on educational change we needed:

1. To develop a model of the innovative process that centers on implementation.
2. To define outcome measures that assess the effectiveness of implementation and the extent to which the change agent projects meet the policy goals of project continuation and dissemination.
3. To identify factors affecting the innovative process and, consequently, the outcomes of innovative projects.

[1] See Vol. I for a discussion of the literature on this point.

STAGES OF INNOVATION

We view the innovative process as consisting of three stages: *initiation, implementation,* and *incorporation.* The initiation stage in the life of an innovative project occurs when local school officials conceive and formulate plans, seek resources, and make decisions about which projects they should select and support. We hypothesized that the support and commitments made in the initiation period affect what happens when project implementation begins.

A crucial stage is the implementation stage, when the project confronts the reality of its institutional setting and project plans must be translated into practice. Many innovative projects fail or produce disappointing results because they are not implemented according to plan. But the issue of implementation is often more subtle and complicated than mere fidelity to some specific blueprint for reaching a set of educational goals. We hypothesized that local school systems are so structured that in order to implement significant innovations there must be a process of *mutual adaptation.*[2] The initial design of an innovative project must be adapted to the particular organizational setting of the school, classroom, or other institutional hosts, and, at the same time, the organization and its members must adapt to the demands of the project. Many educational innovations may fail to have desirable effects because the project is not adapted to the institutional setting or vice versa during the implementation stage.

The term *incorporation* is used to denote the final stage in innovation—when an innovative practice loses its "special project" status and becomes part of the routinized behavior of the LEA. Incorporation involves the most serious commitment on the part of the district, as federal "seed money" is withdrawn and decisions must be made about not only *whether* but also *what components* of and on *what scale* a project should be continued within the district. We hypothesized that this decision may involve more than the success or failure of the project during its trial period. Economic, political, and organizational pressures and constraints may play major roles in determining the innovation's future.

These three stages—initiation, implementation, incorporation—involve somewhat different activities and decisions, and the significance of actors and issues also changes from one stage to another. We believe that a key to designing and assessing federal, state, and local policy lies in understanding how the stages of innovation work in different locations, for different innovations, and for the various change agent programs.

DEFINING "OUTCOMES"

As the innovative process is better understood, it becomes possible to analyze innovations by measuring the "outcomes" of a project and identifying factors influencing these outcomes. But defining which project outcomes to measure had to be done carefully.

[2] Volume I defines an innovation as a plan with a statement of goals and means designed to change standard behavior, practices, or procedures. Many educational innovations tend to have abstract goals, to be vague about means, and to be uncertain about the relationship between means and ends. Such uncertainty makes it desirable for the innovation to become developed, revised, or, in short, adapted to the realities of its institutional setting. Accordingly, we define implementation as the change process that occurs when an innovative project impinges upon an organization.

Although student outcomes might be the ultimate indicator of the effectiveness of an innovation, it was both premature and inappropriate to use them as measures in this study. The projects we studied were generally new to the district or school and usually needed time to be developed before an accurate assessment of their long-run effects on students could be made. Moreover, the change agent projects had such diverse goals and ambitions that comparisons across projects on absolute or content-free student performance measures were meaningless. For example, an increase of a half grade level in cognitive test scores for a remedial mathematics project in an elementary school cannot be reasonably compared with a measure of greater awareness of career opportunities for a high school career education project.

Important conceptual reasons also lead us to measure project "outcomes" other than student outcomes. Because projects must go through the complex and uncertain process of implementation before they can affect students, it makes sense to put first things first and to measure the effectiveness of implementation before examining potential student impacts.

Moreover, projects may "mutate" during implementation. Unless one can predict how the project changes, it is not possible to determine whether variations in student outcomes are the result of the initial project plans or of the interplay of the project with its institutional setting. In short, for the purposes of this study, we focused on implementation and developed the following measures of the effectiveness of a project's implementation:

1. *Perceived success:* the relative extent to which project participants believed that goals were achieved.
2. *Change in behavior:* the type and extent of change in teacher and administrator behavior as perceived by participants.
3. *Fidelity of implementation:* the extent to which the project was implemented as originally planned.[3]

These measures are designed to indicate how project, school, and district staff assessed the project's implementation. Moreover, in combination, they enable us to make overall judgments about factors affecting implementation. For example, project characteristics that are positively related to fidelity of implementation may be negatively related to teacher change. This result would be consistent with the following hypothesis: Unless the project deviates from its original proposal, that is, unless it adapts, teacher change may not occur. As another illustration, project characteristics that are positively associated with perceived success but negatively associated with teacher change might reflect (depending on the characteristics in question) "successful" but trivial projects.

Another policy relevant "outcome" is *continuation*—the extent to which the LEA continued project activities after federal funds were withdrawn. This measure provides a critical test of the value of change agent projects because federal planners anticipate that change agent funds provide seed money. Moreover, continuation may represent in effect a local market test of the merit of the innovation. In this first phase of the Rand change agent study, we examined projects in their last years of federal funding and, hence, were able to measure only *expected* continuation.[4]

[3] The difficulty of implementation was another dependent variable used in conjunction with the above indicators of the project's implementation.

[4] Another outcome is *dissemination*—the extent to which the project is spread from its original site. Dissemination can involve the spreading of all or some project practices both within the district and

IDENTIFYING FACTORS AFFECTING IMPLEMENTATION AND CONTINUATION

We hypothesized at the outset of the study that the innovative process and, consequently, project outcomes are largely determined by the interplay among characteristics of the project, the institutional setting, and federal policies. A major objective of our research was to weigh the influence of these factors on implementation and continuation.

To do so, we identified components of the general factors and analyzed their significance for project outcomes, controlling for other components. For example, we distinguished the educational treatment of a project from the project's implementation strategy, which we defined as the choices made to implement the project. The findings, which are reviewed in Sec. IV, consist of estimating the extent to which educational treatment as compared with implementation strategy determined implementation outcomes.

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outside of the district. This project outcome is a central focus of the second phase of our research. The first phase of the study did not systematically collect data about dissemination, except for observations in some fieldwork sites. See Vol. III, Sec. IV, for a discussion of these preliminary observations.

III. THE PROCESS OF INNOVATION

A change agent project proceeds through three distinct stages—initiation, implementation, and incorporation—as it develops from an innovative plan to an operational reality. Our fieldwork provided evidence that in each of these stages there were certain typical processes and decisions by principal actors and, moreover, that the institutional setting heavily influenced the way these processes worked.

INITIATION

We observed four factors that interacted to spur the initiation of change agent projects: the presence of a "good" idea, the availability of federal funds, local needs, and the incentives of individual actors.

This interaction in particular settings defined initiation processes that we found could be characterized into two ideal types: *opportunism* and *problem solving.*[1] The contrasting motivations that characterized these different initiation processes continued to play a pervasive role in the implementation and thus in the outcomes of the innovations.

Projects generated essentially by opportunism seemed to be a response to available funds and were characterized by a lack of interest and commitment on the part of local participants—from district administrators to classroom teachers. As a result, participants were often indifferent to project activities and outcomes, and little in the way of serious change was ever attempted—or occurred.

The problem-solving motive for projects emerged primarily in response to locally identified needs and was associated with a strong commitment to address these needs. Federal funds were viewed as a way to support the local solution—one which often broke new ground in local educational practice.

It is important to note that the "search for alternatives" traditionally assumed to be characteristic of the problem-solving approach to innovation did not occur. The designers of change agent projects that were typified by problem-solving motivation did not search. Instead, they used information or treatments that were already known to local district personnel.

It is possible that local administrators did not search outside of their districts for "better" treatments or technologies because they intuitively feel that the success and suitability of an innovation depend primarily on local conditions, a view that our evidence supports. Thus, local administrators are likely to be skeptical about the reported "success" of educational methods in other districts and tend to rely on the advice of local professionals who have a thorough knowledge of particular local conditions.

The opportunity-based projects also generally used available information or current knowledge, except when they accepted—essentially in toto—the design and advice of outside experts. Projects imported into the districts from the outside usually failed to gather the support of LEA staff. Not only were these projects unable

[1] See Vol. III, Sec. II.

to elicit initial commitment but, because they were not locally conceived, they could not generate staff involvement during implementation. Generally, whether a project was initiated primarily to solve a local problem or largely in response to an opportunity, the involvement of all key participants in its early or formative stages was important to implementation.

IMPLEMENTATION

Contrary to the assumption underlying many change strategies, implementation did not involve merely the direct application of a technology. Implementation was an organizational process that implied interactions between the project and its setting; thus, it was neither automatic nor certain.

We observed three types of interactions—defined by the extent to which the project was adapted to the institution or vice versa—that characterized implementation processes:

1. Adaptation of both the project design and the institutional setting; we call this *mutual adaptation.*
2. No adaptation on the part of either project or setting; this lack of change, which we call *nonimplementation,* typically occurred in instances where the district played an indifferent host or projects were overcome by implementation problems.
3. Project adaptation to the indifference and resistance to change on the part of project participants but no change by participants themselves; this one-way process could be called *cooptation* of the project by its host.

A fourth type of implementation could be imagined; that is, some behavior, activities, and practices of the staff could change as a result of the project even though the project itself would not be modified; this could be called *technological learning.* This situation could describe implementation in the instances of projects involving "pure" technologies or comprehensive packages such as the so-called teacher-proof curricula. However, although logically possible, pure technological learning appeared not to occur in practice. Instead, these highly prescriptive techniques were either adapted to local needs and interests or were not implemented at all.

The type of implementation process—mutual adaptation, cooptation, or nonimplementation—that occurred for any particular project depended on three considerations: the motivations and circumstances involved in its initiation, its substance and scope of proposed change, and its implementation strategy.

Opportunistic projects tended, other things being equal, to either be coopted during implementation, or to undergo a symbolic type of nonimplementation. For example, we observed career education projects that involved the addition of peripheral enrichment materials to the standard curriculum. In these cases, implementation was essentially pro forma; it constituted in effect nonimplementation of the ideas underlying career education. That the participants usually reported success in meeting their project's goals—without change in teacher behavior—was often testimony to the lack of ambition of their innovation. They seemed to be indifferent to the projects.

Some projects that were initiated in a problem-solving manner also experienced cooptation or nonimplementation, but they tended to have different characteristics. For example, some Right-To-Read projects experienced nonimplementation because they simply broke down as project participants attempted to apply the prescribed management strategies and could not cope with unanticipated requirements. An illustration of cooptation associated with a problem-solving approach occurred for a top-down staff development project involving differentiated staffing where, despite commitment from administrators, staff members adapted the project to their own needs and did not significantly modify their own behavior in accord with the project's intent.

In all the cases we observed, mutual adaptation occurred only if the project was preceded by attitudes and commitments associated with problem solving. Thus, a problem-solving initiation may be a necessary condition for mutual adaptation.

Mutual adaptation could involve a variety of adjustments—for example, reduction or modification of idealistic project goals, amendment or simplification of project treatment, downward revision of ambitious expectations for behavioral change in the staff or of overly optimistic effects of the project on students, and unanticipated changes in standard practices by or relationships between staff and administrators. These adjustments often caused difficulties and did not invariably lead to a full achievement of the project's goals. But they typically increased the likelihood of changes in teacher and organizational practices.

In addition to greater prospects for mutual adaptation arising from a problem-solving approach to change, the extent of mutual adaptation that occurred depended on the substance and scope of change proposed by the project design, particularly on how complex and specific the methods and goals were, and flexibility in coping with unanticipated implementation problems. The most extensive mutual adaptation took place in projects, such as open-classroom innovations, that were highly complex, relatively unspecified in terms of prescribed treatment, and required a significant amount of change on the part of teachers and administrators.

INCORPORATION

Continuation of federally sponsored projects after the end of federal financial support is usually thought about in indivisible and institutional terms; that is, a project is considered to be "continued" if a decision is made by the district to carry on the original "package" or "program" of goals and treatment. But our research suggested that continuation is not always such a straightforward question; nor is it always the result of formal district decisions.

Rather than simply a yes-no decision to continue a project on district funds, we found that a process of incorporation takes place in which portions of projects may become part of the ongoing activities of the schools and thus may be maintained. Moreover, incorporation had two aspects. At the classroom level, teachers or principals often planned to assimilate parts of a change agent project into their regular routine, with or without formal project affiliation or district sanctions. At the school district level, incorporation implies LEA support—financial, organizational, and

political—to continue the project when it loses its special project status. We found little evidence, at either level, of *direct* federal policy influence on incorporation.[2]

For the sake of clarity, we refer to continuation as an "outcome" measure of the extent to which a project persists at any level in the local school district after the end of federal funding; incorporation refers to the process itself.

At the classroom level, we found that projects that *replaced* existing practices seemed more likely to continue the new practices than those that merely *supplemented* or added on to the existing curriculum. Continuation was more likely under the following conditions: an emphasis on training rather than on the introduction of new technology, training focused on practical classroom issues rather than on theoretical concepts, and local development of materials rather than reliance on outside consultants. Teachers participating in projects that successfully implemented these training or developmental activities reported that they "could never go back" to traditional classroom roles and behavior. Conversely, change agent projects, such as the career education projects, which typically simply added new activities or materials to a district's repertoire, were rarely expected to be continued (unless the SEA mandated some type of similar categorical program in the district, as was sometimes the case with bilingual and career education). Our observations suggest that the ancillary materials employed by these projects were likely to fall into disuse without the active encouragement of a special project staff and explicit use by another project. In the case of add-on projects, it seems likely that when special project status and staff go away with the last federal check, these additional materials and supplementary activities will be discontinued.[3]

The only effect federal change agent programs had on expected project continuation was an *indirect* one that derived from the training and developmental activities of projects. Continuation was most likely to take place in Title III projects because classroom organization and staff development projects were more likely to be funded by Title III. However, vocational education projects did not meet these incorporation "conditions" and were generally not expected to survive the disappearance of federal funds.

At the district level, a pattern emerged concerning the relationship between expected continuation and initial motivation and support. Decisions or expectations about individual or district continuation of project activities appeared to closely parallel the decisions or motivations that underlay project initiation. Projects that were initiated with strong district support, and that were also seen as a solution to a particular problem, were generally expected to be continued. However, projects that represented an opportunistic response to available dollars and received little or no support from district administrators were usually expected to wither away, even when project objectives were met.

More specifically, the data provide evidence that superintendents weigh four general concerns in reaching decisions about continuation—the project's "success" during implementation, the centrality or importance of the educational needs served by the project, the resources required by the project, and the organizational-political forces inhibiting or promoting the innovation. In particular, if a project was

[2] These findings must be treated as preliminary. We studied projects in their last years of federal funding and thus could only examine *expected* continuation. The next phase of Rand's research will focus on projects after the withdrawal of federal support.

[3] See Vol. III, Sec. IV.

perceived as central and successful, had the support of the staff, and was not too expensive, it was likely to be continued. Such projects were often initiated as the result of the need to solve a problem within the district and often replaced traditional teaching activities with new departures (e.g., classroom organizational changes). Projects initiated in an opportunistic fashion typically became add-ons and disappeared with the termination of federal funds.[4] Evaluation evidence did not appear to play a major role in continuation decisions. We observed "successful" projects that were expected to be terminated, and "unsuccessful" projects that were to be continued. In short, the initial patterns of motivation that underlay initiation persisted; support or commitment was not altered by evaluation data.

* * *

Thus, each stage in the process of change—initiation, implementation, and incorporation—was described in terms of the interplay between the characteristics of the project and its local setting. The specific relationships and patterns of motivations discussed above serve as both findings and hypotheses that allow us to examine and assess the significance of factors affecting the outcomes of innovative projects.

[4] See Vol. II, Sec. V.

IV. FACTORS AFFECTING IMPLEMENTATION AND CONTINUATION

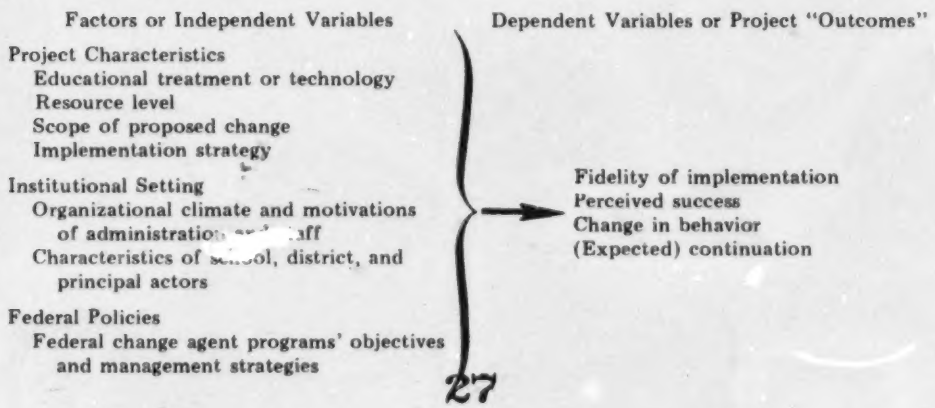
We hypothesized in our theoretical approach that three general factors can influence the course of innovative projects—project characteristics, the institutional setting, and federal policies. The preceding analysis of the innovation process suggests key components of these general factors, which are listed, along with the previously discussed measures of the effectiveness of implementation and continuation, in Table 1.

Project characteristics listed in Table 1 consist basically of four elements: educational treatment, resource level, scope of proposed change, and implementation strategy. Although most studies distinguish between the project's educational treatment and its resource level (e.g., level of federal funding, number of students served by the project, and per-pupil expenditure), many studies attempting to relate project characteristics to outcomes fail to distinguish the treatment from the scope of change contemplated by the would-be innovators. Yet such dimensions as the complexity and the amount of change required by a project can be expected to place different demands on the institutional setting and thus may have strong effects on project outcomes. Moreover, project evaluations seldom differentiate the educational treatment or technology from the (usually implicit) implementation strategy selected to carry out the treatment. Yet our research provided us with many illustrations of the same basic treatment being implemented in contrasting ways in different school and district settings, resulting in different outcomes.

Another general factor assumed to affect innovation is the institutional setting. Experience and common knowledge suggest that schools and school districts differ from one another in many ways. Some statistical studies have analyzed the back-

Table 1

Factors That Can Affect Innovative Projects



ground and demographic characteristics of a project's school, school district, and participants. But our study of the process of innovation suggests that the organizational climate and the motivations of principal actors also can play critical roles in project outcomes.

The final factor that might affect innovative projects is federal policies. The Rand change agent study examined four federal programs designed to promote educational change, each with a different management strategy and a different set of priorities. This diversity provided an opportunity to compare the innovations funded by different programs and to assess the extent to which differences in federal program strategies and priorities could account for variations in the innovative process and project outcomes. However, our primary concern was not with evaluating any particular program but with using program comparisons as one measure of judging the effectiveness of policy instruments common to these change agent programs.

This section reviews, in turn, our findings about the nature and significance of these independent variables for effective implementation and continuation.

EFFECTS OF PROJECT CHARACTERISTICS ON PROJECT "OUTCOMES"

Educational Treatment or Technology

Educational treatment traditionally has been thought to be a major factor explaining the outcomes of innovative projects. Our sample of projects evidenced a great diversity of treatments ranging from open educational efforts to computer-assisted instruction. To reduce this variety, we collected survey data on the specific techniques used by a project and grouped these techniques statistically. Using this procedure, we developed five factors that represent the basic educational approaches in our sample—classroom organizational changes, enrichment techniques, intensive traditional staffing, school administrative changes, and behavioral modification techniques.[1] Analysis of these educational approaches showed that, other things being equal, they explained relatively little of the variation in implementation outcomes and in continuation.[2]

This finding is subject to measurement error. Yet our fieldwork supported the statistical evidence. For example, we observed the same mathematics program installed in a district in four schools having comparable student and staff characteristics. But the project was implemented in dramatically different ways at each site. We believe these results reflect—and tend to confirm—the mutation hypothesis that the treatment is generally adapted and altered by the schools during implementation.

This evidence of the lack of a consistent correlation between treatment and outcome suggests a simple but highly important implication, particularly for project

[1] This procedure used factor analysis. For statistical details, see Vol. II, Sec. II.

[2] See Vol. II, Secs. IV and V. Several exceptions to this overall statistical pattern occurred. A significant exception involved classroom organizational changes: Title III projects with high levels of classroom organizational changes were more likely to be continued than other Title III projects, even though they were more difficult to implement and were perceived as no more successful, at least in the short run.

evaluators: The predictors of effective implementation are likely to lie in those project characteristics promoting or inhibiting adaptation to the institutional setting—the implementation strategy—rather than in the educational treatment or technology itself.

Resource Level

Many projects in our sample received financial assistance from state, local, and foundation sources in addition to federal funds. Both the absolute amount of money available to projects and the project per-pupil expenditure varied considerably. Nonetheless, other things being equal, variations in the funding level, the number of students served, and the concentration of funding had small and generally not significant effects on project outcomes.[3]

This finding casts doubt on the possibility of using outside funding, whether administered by the federal government or state education agencies, as a finely tuned policy instrument.[4] However, it does not imply that the injection of federal funds was inconsequential. On the contrary, our respondents strongly indicated that many of the innovations attempted would not have been possible without initial outside financial support. Our sense of the general political and economic constraints on school districts supports this view.

Substance and Scope of Proposed Change

The evidence so far suggests that neither variations in educational treatments nor resource levels greatly affected implementation outcomes. A characteristic of innovations that did have major effects was the scope of change proposed by the project design.

Innovative projects in the Rand sample differed considerably not only in terms of their substance (e.g., reading versus career education) but also in terms of the scope of the proposed change. Some projects consisted of highly specific and uncomplicated additions to the curriculum or technological supplements to standard practices. As such, they neither required much change from teachers or administrators nor conflicted with usual procedures and practices. Other projects were exactly the opposite. To describe this aspect of a project, we define four dimensions—the project's centrality (i.e., how close the goals of a project were to major educational objectives of the district), the nature and amount of change required, the project's complexity, and its consonance (i.e., the fit between the project's goals, values, and practices and those of the schools and district).[5]

These important dimensions of the scope of change were, of course, difficult to measure and, hence, our findings are tentative. Yet they had such pervasive influ-

[3] See Vol. II, Sec. IV. Three significant exceptions may have important implications for federal planners, even though the statistical effects are small. Projects with large target groups were negatively related to teacher change, particularly in elementary schools. However, the more concentrated the funding was on Title III projects, the more likely was teacher change. And the more expensive a project was, the less likely it was to be continued.

[4] This finding must be qualified. Although the per-pupil expenditure reached high levels (over $5000 per student per year) for a small percentage of the projects in the sample, the federal funds provided were a relatively small percentage of most school district budgets. Therefore, very large increments of outside funds (e.g., 30 percent of a district's budget) might have major effects on project outcomes.

[5] See Vol. I, Sec. III; Vol. II, Sec. V; and Vol. III, Secs. I and III.

ence on the process of innovation and its outcomes that we feel justified in emphasizing their importance.

Whether an innovation was perceived as central to the district's priorities or as ancillary appears to have affected the interest and commitment of project participants at all levels. Projects initiated in a problem-solving fashion were, by their very nature, central, whereas opportunity-based projects tended to be ancillary. We found that the more central an innovation was, the more likely it was to be continued by the district using its own resources. This finding is particularly significant because it held even controlling for the cost and perceived success of the project. That is, projects with high district priority were likely to be continued even in cases when they had not been relatively successful during their temporary federal funding period and when they were expensive for the district.[6] Ancillary projects tended to be add-ons to district practices and were not likely to be continued.

Significant change in teacher behavior was not likely to occur when it was not required by the innovation. Projects requiring teacher change and extra effort were difficult to implement and generally did not adhere to the initial project design.[7] These serious change attempts were often perceived as relatively less successful in achieving their stated project goals during the period of temporary federal funding than other less ambitious, more narrowly focused projects. The reason for this disparity between teacher change and short-run success may be due to the necessity for new behavior to be incorporated before its effects can be realized.

Complexity is closely associated with other dimensions of change and is thus difficult to measure. Nonetheless, we observed three aspects of project complexity that had different effects on outcomes. First, some projects were structurally complex. These projects attempted a comprehensive innovation that spanned many grade levels or tried to include all classrooms in particular grade levels in a district. The most complex—those covering both elementary and secondary schools—were very difficult to implement, were not perceived by project participants as being successful, and were unlikely to be continued.[8] This suggests that structural complexity requiring a great deal of coordination across school grades and levels is not likely to eventuate in successful projects. Such projects often broke down because they attempted too much too soon.

In contrast, a second aspect of complexity involves the treatment. A strong impression gleaned from our field observations was that narrow treatments did not lead to broad-based or enduring change in teacher behavior. This suggests that innovations involving a comprehensive area of curriculum or requiring an overall change in teacher behavior are more likely to induce change, other things being equal.

A final type of complexity involves the integration of project activities into the ongoing procedures of the school or school district. For example, an innovation such as a differentiated staffing project requires schoolwide scheduling changes and dislocations of faculties. These projects were difficult to implement unless they had the active support of the school. Similarly, integration was also important at the classroom level. For example, projects that included a heavy teacher training or staff development component, but that did not tie these new skills and behavior to ongo-

[6] See Vol. II, Sec. V.
[7] See Vol. II, Sec. IV.
[8] See Vol. II, Secs. IV and V.

ing classroom responsibilities seldom succeeded in promoting significant or enduring change in teacher behavior. Conversely, projects—such as the classroom organization projects—that integrated change in training with expectations for concomitant classroom behavior were likely to result in basic change in teacher activities.

The final aspect of the scope of change attempted by a project involves the notion of consonance. If the values and goals implicit in a project's design were not congruent with those of project participants, the innovation was likely to be either symbolically implemented or not implemented at all. For example, career education projects seemed to be particularly susceptible to this lack of consonance. In contrast, those innovations characterized by complex treatments involving integration of different elements of the organization appeared to require the kind of support from district officials and commitment from the staff that only comes when their values are consonant with the project's philosophy and goals. This appears to be particularly important when the proposed innovation represents a major departure from standard district practice. One of our fieldwork staff development projects illustrates this dramatically. Midway into the project's implementation, a change in school board membership resulted in a district-level reorganization, and the new administrators had values in conflict with the precepts of the staff development project. Consequently, the project lost district support and floundered.

Implementation Strategy

A project's implementation strategy results from many choices about how to implement its goals and educational treatment. Decisions about the type and amount of planning, the location of the project, and about who should participate (and to what extent they should participate) are examples of such choices, and define in effect how an educational treatment is put into practice. Implementation strategies are distinguishable from project treatment. The educational method chosen for a project (i.e., diagnostic/prescriptive reading techniques or classroom organization) is different from the strategy for implementing that method. For example, no two reading projects employ quite the same process or strategy for achieving their almost identical objectives.

Data from the survey and the fieldwork clearly indicate that (after controlling for variations in institutional settings, in federal programs, in educational methods, and in project resources) the implementation strategies selected to carry out a project vitally influence the innovative process and project outcomes.[9]

In particular, the strategies that significantly promoted teacher change included staff training, frequent and regular meetings, and local material development. The absence of any one of the above elements was likely to reduce the perceived success and the amount of teacher change on projects. The lack of teacher participation in day-to-day implementation decisions also reduced perceived success.

Our fieldwork suggests that each project employed its own combination of strategic choices that defined in effect its particular *implementation strategy*. Thus, it is more meaningful to discuss how—and why—the various individual strategic choices interact with each other to form a "successful" implementation strategy. We believe that a successful implementation strategy is one that promotes mutual adaptation. By doing so, it is the most likely to produce significant and persistent

[9] See Vol. II, Sec. IV, and Vol. III, Sec. III.

teacher change and holds the best prospects for the long-run achievement of project goals.

We identified the following elements to be the main components of an implementation strategy that promotes mutual adaptation.

Adaptive Planning. Projects varied considerably in the amount of planning they did, and it would appear that in their first year the more successful projects avoided the extremes of *almost no* planning and of *almost all* planning. But otherwise, the *amount* of planning was not significantly related to project outcomes. Indeed, it appears that the amount of planning seemed less important than whether the quality of planning matched the needs of the project and its participants.

Although the resources spent on planning had little effect on project outcomes, the *nature* of the planning process had a major effect. Planning activities that were flexible, adaptive, and congruent with the nature of the project were more likely to result in well-implemented innovations. By "flexible" and "adaptive" planning, we mean planning that established channels of communication, set forth initial goals and objectives with the assistance of a representative group of prospective project participants, and maintained a continuing process of planning. Frequent and regular staff meetings contributed significantly to project success because they made planning a continuous process. These meetings provided a forum for reassessing project goals and activities, monitoring project achievements and problems, and modifying practices in light of institutional and project demands. Planning, in this instance, had a firm base in project reality, so that issues could be identified and solutions determined before problems became crises. Meetings also strengthened staff morale, established a sense of project cohesiveness, and broke down the traditional isolation of the classroom teacher.

Staff Training Keyed to the Local Setting. Projects also differed greatly in the amount, timing, and type of training for project staff. Training was significantly related to project outcomes only when it was tied to the specifics of project operation and to the practical day-to-day problems of the project participants. For example, we saw that the effectiveness of training was conditioned by the training format and by who did the training. Teachers strongly preferred very concrete "how-to-do-it" workshops given by local personnel (as opposed to a more general lecture, inspirational format). The projects that were implemented most smoothly had either a project director or district resource personnel whose understanding and experience (both in project methods and in the local setting) enabled them to make specific suggestions to help teachers implement the project. Teachers said that outside technical assistants performing a similar consulting role were ineffective and disappointing.[10]

Local Material Development. Material development activities ranged from careful assessment and "repackaging" of existing products to producing from scratch a wide range of project materials. These development activities can play an important role in successful project implementation and, subsequently, in project outcomes. The value of producing one's own project materials may not lie principally in the merits of the final product, but in the activity of development itself. The

[10] One strategy that was not significantly related to outcomes was extra pay given as an incentive for teacher training. Our fieldwork observations suggest that money and other tangible rewards were not effective in inducing teachers to acquire new skills if their own professional interests or concerns did not lead them to see such new learning as important.

exercise of "reinventing the wheel" can provide an important opportunity for staff to work through and understand project precepts and to develop a sense of "ownership" in project methods and goals. Without this "learning by doing," it is doubtful that projects attempting to achieve significant teacher change would be effectively implemented.[11]

Critical Mass. Although project participants did not show much resistance to innovation, particularly when there was a strong commitment on the part of the district, nonproject personnel sometimes impeded project implementation. When project teachers felt "isolated" (and unappreciated), negative or indifferent attitudes from nonparticipants eroded staff morale and constituted a pressure for the project teacher to "give up."

Apparently, a critical mass of project participants is necessary to build the support and morale of the project staff. Furthermore, a critical mass of project staff in a given site is able to establish a norm for change in the setting, rather than making project teachers seem to be deviant.

In sum, these components—adaptive planning, staff training keyed to the local setting, local material development, and the establishment of a critical mass—were the key elements of an implementation strategy that promoted mutual adaptation. For this reason, innovations employing these elements often had a slower start-up and a difficult implementation but were more likely to result in significant and enduring teacher change.

EFFECTS OF INSTITUTIONAL SETTING ON PROJECT "OUTCOMES"

The preceding discussion of the process of change and of implementation strategies foreshadows a major conclusion of this study: An innovation's local institutional setting has the major influence on its prospects for effective implementation. Although we could not collect data on all aspects of the institutional setting, our statistical analysis as well as our fieldwork clearly showed that project outcomes depended more on the characteristics of the project's setting than on any other factor.

In particular, the local organizational climate and the motivations of project participants had major effects on perceived success and on change in teacher behavior. More specifically, high morale of teachers at a school, the active support of principals who appear to be the "gate-keepers" of change, the general support of the superintendent and district officials, and the teachers' willingness to expend extra effort on the project all increased the chances of teacher change and perceived success. The attitudes of administrators in effect tell the staff how seriously they should take project objectives. Unless the project seems to represent a district and school priority, teachers may not put in the extra effort and emotional investment necessary for successful implementation. Thus, when these elements were not in evidence, projects were likely to break down or be implemented symbolically without significant change.

Organizational climate and individual commitment are important because sig-

[11] We do not have direct evidence as to whether the quality of locally developed materials "improved" the curriculum. However, project participants consistently reported that locally developed materials were better for their needs than those that they replaced.

nificant innovations often require more than the mere installation of a promising educational method, technique, or technology. They usually assume that individuals alter their traditional patterns of behavior. In other words, the institution must adapt to the demands of the change agent project even as the project adapts to its environment.

Because the school organization must adapt if significant change is to take place, the receptiveness of the institutional setting to the change agent project seemed to be a necessary condition for successful implementation. Naturally, implementation was difficult in a hostile environment, but *indifferent* settings also failed to provide necessary support.

Indifferent and unreceptive environments were frequent in our sample of projects attempted in secondary schools. Innovations in elementary schools were more likely to be successfully implemented and to result in teacher change than projects in high schools, junior high schools, or those that cut across elementary and high school levels. Change agent projects that included the higher grade levels experienced severe management and administrative problems as well as teacher resistance. For example, Right-To-Read projects consistently encountered resistance at the high school level as they attempted to persuade science or history teachers to view themselves as teachers of reading. The same thing happened with career education projects. Project managers could generate little interest in "new ideas" among secondary school teachers of "solid subjects" who perceive themselves as having large intellectual and emotional investments in academic purity. In short, this tendency toward strict professionalism among secondary school teachers (along with the compartmentalization of the curriculum and classroom scheduling) may not have provided the organizational conditions necessary for significant change efforts.

In contrast, a receptive institutional setting provides explicit, steady support for change agent efforts. As such, a receptive institutional setting is a necessary but not sufficient condition for effective implementation. Mutual adaptation—which we believe is the key to serious change—requires an effective implementation strategy, one that takes advantage of institutional support. Indeed, the components of the implementation strategy that we found to be most effective—adaptive planning, staff training keyed to the local setting, and local material development—were those that enabled the support and commitment of administrators and staff to be fully engaged.

EFFECTS OF FEDERAL POLICIES ON PROJECT "OUTCOMES"

Because federal policies provide external inputs to the course of an innovation, their effects should be analyzed differently from such internal factors as implementation strategies and organizational climate that are an intrinsic part of the interplay characterizing the innovative process. Federal policies might affect each of the stages of innovation directly, and, moreover, a federal policy effect on the initiation stage might be played out indirectly during implementation and incorporation. These direct and indirect influences were analyzed by comparing effects on each stage for each federal program.

We found that federal policies primarily affected only the initiation stage but

that these initial influences were not reflected in implementation or incorporation; consequently, federal policies had little influence on project outcomes.

In particular, reports from local project staff as well as our field observations clearly indicate that the availability of federal funds made many projects possible that simply could not have been initiated solely on a district's limited budget. Moreover, the three categorical programs usually promoted local projects that were congruent with their federal categorical priorities.

Furthermore, statistical analyses indicated that the guidelines, the program characteristics, funding, and the priorities of federal programs did affect initial project design, but not much. Whatever the motives of school districts—seeking opportunities to gain federal money or attempting to solve their problems by initiating innovative projects—it seems clear that some educational methods were more likely to be employed than others because some federal programs fostered these methods, either in their administrative guidelines or in their focus. Thus, comparing Right-To-Read projects with Title III reading projects, we find that behavioral modification techniques and concentrated traditional staffing were less likely to be adopted by the locally initiated Title III reading projects. Increased levels of enrichment were associated with vocational education and Title VII when compared with Title III projects of a similar form. However, federal funding opportunities appeared to have less effect on the extent to which local districts elected to employ such locally conceived projects as innovation in classroom organization.

Whereas the federal program effects on initiation were direct, their influence on implementation was necessarily indirect. The change agent policies did not provide explicit assistance or intervention during the implementation phase. Yet the different guidelines and management strategies could affect the way projects were implemented. The data suggest, however, that the differences between the programs explained only a small amount of the variation in implementation outcomes and continuation decisions.

Using four measures of project outcomes—fidelity of implementation, perceived success (percentage of goals achieved), teacher change, and expected continuation—we directly compared the mean outcomes of projects funded by the various federal change agent programs.[12] The federal programs differed little from one another on these measures.

This finding suggests that federal change agent programs had approximately equal effects on project outcomes, despite their different management strategies. A simple and yet appropriate explanation for equivalent program effects is that the policy common to these programs had limited influence on implementation and incorporation.[13]

These findings that federal policy had little influence on project outcomes, despite having important influence on adoption, point to the general conclusion that external inputs get used by the local schools in ways consistent with local needs.

[12] See Vol. II, Tables 11 and 17. This analysis acknowledges the fact that we dealt only with the explicitly micro-level outcomes of individual projects. Federal policies also have macro and often implicit concerns, such as fostering the legitimacy of bilingual instruction in public education, or the broad goal of Right-To-Read—increasing general awareness of the importance of reading.

[13] Because the change agent policy common to the programs had limited influence, each separate program could affect project implementation only marginally. Within the latitude possible for marginal effects, some significant differences between programs could be discerned. Appendix C presents our findings about these marginal differences.

Thus, the basic policy instrument of differential funding had little if any influence on the motivations that led districts to initiate projects, that is, opportunism or problem solving. In exchange for the federal grant, the districts essentially promised only to adopt the projects. The money in and of itself did not stimulate support, commitment, or interest in change. For example, projects characterized by problem-solving attitudes typically involved innovations that the district was committed to anyway. In contrast, projects based on opportunism generally lacked serious interest in change regardless of the extra money. Thus, since special funding did not alter basic motivations, it failed to influence those features of initiation that shaped implementation and project outcomes.

* * *

In summary, our data show that a receptive institutional setting is a necessary but not sufficient condition for effective implementation. An implementation strategy that promotes mutual adaptation is critical.

The main factors affecting innovations were the institutional setting, particularly organizational climate and the motivations of participants, the implementation strategy employed by local innovators to install the project treatment, and the scope of change implied by the project relative to its setting. Neither the technology nor the project resources nor the different federal management strategies influenced outcomes in major ways. Thus, project outcomes did not depend primarily on "inputs" from outside but on internal factors and local decisions.

V. TENTATIVE POLICY IMPLICATIONS

At this preliminary stage of the Rand research, we cannot propose detailed or firm policy recommendations. However, we can offer some building blocks for future policy that reflect our findings about school district behavior.

FEDERAL CHANGE AGENT PREMISES VERSUS LEA PRACTICES

Our evidence indicates that federal change agent policies had their primary effect on the initiation of projects but that neither those policies that were unique to each of the federal programs nor those policies that were common to them had a strong influence on the implementation of local innovations. Federal change agent policies exercised limited leverage on the course of innovations because they did not critically influence those factors most responsible for effective implementation—the motivations of actors within the institutional setting and the locally designed implementation strategies. These observations suggest that a number of premises underlying the formulation of change agent policies need to be reexamined.

Federal policy appears to assume that school districts take something akin to an R&D approach to change, an assumption expressed in three main premises forming the foundation of change agent policies:

1. The adoption by the schools of better technologies or treatments would lead to more effective educational practices.
2. The schools are motivated to search for better technologies. If they had reliable information that would make them aware of better practices, they would be willing to adopt them.
3. The schools lack money to experiment with innovations. By providing "seed money," federal funds would allow school districts to try out new practices and to continue them if they prove to be successful.

Our observations suggest, on the contrary, that while technology, information, and money are necessary to support innovations, they often play a different role in the initiation of innovations than federal planners expected. For example:

1. The mere adoption of a "better" practice does not automatically or invariably fulfill its promise of "better" student outcomes. The reason, as our study shows, is that project implementation, which is largely shaped by the institutional setting, dominates the innovative process and its outcomes. This means that initially similar technologies installed in different settings undergo unique alteration and thus their outcomes cannot be predicted on the basis of treatment alone.
2. The school districts seldom "searched" for better treatments; nor did information about promising practices seem to stimulate them to look outside of their districts. Instead, local planners tended to rely on technologies that were known and supported locally. When demand for change existed, it arose within the district in response to local needs, not generally as a result

of an awareness of purportedly successful innovations that took place elsewhere.

3. Federal change agent funds did not appear to induce school districts to experiment or to take risks with significant innovations. Instead, districts took advantage of the availability of these funds to support temporary add-ons or to finance practices for which prior LEA commitments to solve a local problem existed.

ALTERNATIVE CHANGE AGENT PREMISES AND POLICIES

We believe that federal change agent policy could be based on premises about how school districts behave that do not subscribe to an R&D model. Our first-year research suggests that the following premises better express the realities of LEA behavior in the innovative process:

1. Implementation—rather than the adoption of a technology, the availability of information about it, or the level of funds committed to it—dominates the innovative process and its outcomes.
2. Effective implementation depends on the receptivity of the institutional setting to change.
3. Effective implementation is characterized by the process of mutual adaptation.
4. Local school systems vary in their capacity to deal with innovations and with the stages of the innovative process.

The policy implications of these four premises are:

1. Policy should be concerned with more than the mere adoption of change agent projects. Federal change agent policy clearly stimulated the initiation of special projects, but had little effect on the quality or seriousness of the implementation efforts.

2. The critical significance of the institutional setting should come as no surprise to policymakers. Indeed, the external inputs of educational technology, information, and money are intended to overcome local resistance to outside influence on internal decisions. Our research indicates, however, that they rarely do. If educational technologies are not altered and adapted to local conditions, they are ineffective; information about practices elsewhere seldom goes beyond the level of simple awareness; federal money is used for its intended purpose only if the federal purpose is congruent with local plans.

School districts use the external inputs, but typically are not influenced by them to change their commitments, motivations, or concern with innovation; unless the institution is receptive to change, it is unlikely to be stimulated by these policy instruments. We believe that policies could be designed to enhance receptivity to change.

3. If, given a receptive institutional setting, a project's outcomes depend critically on local decisions about how the project will be implemented, federal policymakers might consider ways of encouraging mutual adaptation strategies which we believe are the key to effective implementation.

It would not be easy to develop and carry out policies to encourage mutual adaptation. We found that attempts to provide outside aid or prescribe management techniques were usually counterproductive, leading to nonimplementation or cooptation. On one hand, outside experts were typically ignored as being too abstract or too unaware of local problems. On the other hand, local staffs sometimes relied so heavily on technical assistance that they were unable to adapt project materials and methods to their own needs and thus they were unable to learn by doing. Similarly, the packaged management approaches we observed tended either to be dismissed as unworkable or to be viewed as complete road maps to innovation, in which case project participants failed to develop the flexibility to cope with unanticipated problems.

Such efforts to help districts innovate seem to be motivated, in part, by interest in fiscal efficiency and in accelerating the innovative process. Outside assistance may produce savings under certain conditions, but our research suggests that innovation is by its nature a costly and time-consuming process. Attempts to speed up the process or to reduce its costs may achieve short-term efficiency at the expense of long-term benefits. For example, we observed cases in which districts hoped to shorten the start-up period and save money by using intensive, "one-shot" preservice training sessions. Such efforts were largely wasted because the inadequacy of staff members' experience with the project's precepts and problems prevented them from making effective use of the training.

We believe, however, that federal policymakers could formulate administrative guidelines that might support local innovators and state facilitators in the development of an adaptive implementation strategy. Such guidelines could articulate the value of those elements that we found essential to mutual adaptation:

- Continuous and on-line planning
- Regular and frequent staff meetings
- In-service training linked to staff meetings
- Local material development

If these elements are criticized as being time consuming or "inefficient," it is important to remember that the pace of the change process is necessarily slow because people learn by doing.

Federal policy also might assist "learning by doing" by using the present network of regional labs in a revised role. For example, we argued that local material development promoted mutual adaptation; that is, "reinventing the wheel" enables school staff members to adapt project materials to their own needs—an essential step in fostering their commitment to the project. It may be possible for regional labs to shift emphasis away from the preparation of complete packages of curriculum materials to "skeletal" frameworks that allow for and indeed assume development by local staff. In addition, the labs might evolve toward providing practitioner-based on-line assistance to districts that are implementing such skeletal frameworks.[1]

4. Federal change agent programs generally awarded fixed-term grants regardless of the school districts' ability to introduce and sustain the particular innovations represented in their proposals. Yet we observed similar innovations being

[1] The Northwest Regional Lab appears to have evolved toward offering practitioner-based assistance.

approached and installed very differently by school districts according to their capacities to innovate. For example, one district attempting to initiate a remedial mathematics project based on Piagetian principles was struggling to operationalize the philosophical principles of the project; another district funded at the same time and at an equivalent level was dealing with the project at a higher developmental level—it had refined the philosophical principles to meet local needs and was in the process of producing classroom materials. When the three-year federal grant ran out, the project participants in the first district had learned to deal with the innovation but the district could not afford to continue it; the other district had used the federal money to begin districtwide dissemination.

These situations are but two of many cases that suggest a possible new departure for federal policy. Rather than blanket awards of a fixed number of years, federal change agent policies might be keyed to the stages of innovation and might promote the development of the school districts' capacity to deal with each stage.

Although this interim report cannot recommend operational policies or procedures, we can explore some of the possibilities and the problems raised by the concept of a change agent policy keyed to the innovative stages: initiation, implementation, and incorporation.

Initiation. Federal policy toward the initiation stage might aim to reduce opportunism and, more important, aim to increase the school districts' receptivity to change by helping them create a local "demand" for innovation and develop a problem-solving attitude in understanding and coping with their needs. Our evidence suggests that the most effective federal or state incentives for these purposes may be indirect.

For example, our research indicates that would-be innovators—teachers or administrators—can more fully appreciate and better cope with the traumas and complexities of change if they have concrete, practical experience. Gaining such experience within one's own limited sphere of activity in a district can be a costly and uncertain process. A more effective means may be provided by such devices as internship or training grants for administrators and travel money and release time for teachers to participate in innovative practices in other districts. These concrete experiences may enable administrators and teachers to expand their horizons, to learn what can be done by people committed to change, and to generate enthusiasm for innovation. We are suggesting an opportunity for professionals to interact with their peers in work situations, rather than a "lighthouse" dissemination strategy for spreading an educational treatment.[2] Because local districts seldom seem able or willing to expend their limited resources for such purposes, competitive awards for professional growth might be federally financed. Such federal awards would carry prestige and thus reinforce the incentives for innovating.

Federal policy also might offer *proposal formulation grants* to promote the capacity of districts to plan adaptively, that is, to plan iteratively throughout implementation so as to make the continuing adjustments characteristic of mutual adaptation. Our evidence suggests that either too little or overly rationalistic planning resulted in ineffective implementation. Instead, effective project planning began during proposal formulation to lay an organizational groundwork for adapta-

[2] We are not referring to short trips to educational fairs or professional meetings which display innovations in an artificial setting.

tion by mobilizing the district leadership and support necessary for implementation, by increasing the flow of communication and feedback among staff and administrators, and by involving project participants so they developed a sense of ownership toward the project. The federal award of a proposal formulation grant might be contingent on the school districts' stipulation about how they would organize themselves to plan adaptively to initiate a proposed innovation.

Implementation. Before a project goes through its implementation stage, both funding agencies and local innovators experience considerable uncertainty about the risks and benefits of a proposed innovation—uncertainty that can only be resolved by a trial implementation. By making funds available in such a way as to reinforce the *trial* aspect of implementation, federal policy might encourage schools to experiment and take risks—behavior that we found rarely occurred.

Because errors—and indeed failures—can be expected in the trial implementation phase, federal planners should adjust their expectations to account for these risks, especially in the area of evaluation. We found that summative evaluation often seemed to be ignored or treated as a necessary ritual. Rather than summative evaluation, federal policy might foster formative evaluation, which might not only remove the onus of failure (and thus reduce the disincentives that lead to cooptation and nonimplementation) but also provide essential feedback to local actors when it is most important (thereby fostering mutual adaptation). Accordingly, federal or state funds for trial implementation might be viewed as short-term (2 years) risk capital and might be so publicized. An award mechanism similar to the one used in the present Title III might be appropriate, perhaps with the requirement of a prerequisite proposal formulation grant.[3]

Incorporation. Because financial considerations often limit a school district's ability to incorporate and spread an innovation, federal policy might be able to influence incorporation directly. Incorporation grants of a relatively large amount might be established that would be awarded within categories that were determined by federal priorities.

The use of such incorporation grants raises serious problems of equity and evaluation. These grants might be awarded to districts after they had received proposal formulation and trial implementation grants and been judged "successful" at each stage. This system of successive grants would filter out many projects from federal grant consideration. Moreover, assuming that districtwide incorporation would be relatively costly in many cases, fewer projects might be funded at the final stage. In short, this particular sequential scheme of keying federal change agent policies to the stages of innovation implies that fewer but "better" projects might be funded. Thus, it may sacrifice equity to gain quality, at least in the short run. Equity versus quality is an issue of value and politics that this research cannot resolve.

Filtering projects for an incorporation grant would require thorough evaluation. We doubt that the usual selection device of judging proposals at a distance would be effective. On-site visits might be necessary to evaluate such crucial ele-

[3] It would be naive to suppose that opportunity-based projects would not be funded in this phase. Neither the federal government nor state governments have low-cost means available for distinguishing opportunistic projects from problem-solving attempts. Proposals usually sort along a dimension of skill in grantsmanship, and thus big or wealthy districts benefit. Although there is no sure quick or easy solution to this problem, a required proposal formulation stage as previously discussed might filter out the more opportunity-based proposals.

ments as the local demand, the institutional capacity to innovate, and the district's problem-solving attitude.[4] Of the project-related criteria, our research indicates that the scope of the proposed change—i.e., the project's complexity, centrality, consonance, and the nature and amount of change required—and the implementation strategy would be critical areas to evaluate.

In sum, there appear to be many possibilities for federal policy to affect the innovation process despite its essentially local nature and the autonomy of school districts. Each possibility for federal leverage raises problems. This interim report has offered our preliminary thoughts about new policy directions. But, more important, it has tried to provide some information and hypotheses that would help policymakers balance the possibilities and the problems that arise from federal efforts to help schools change themselves.

[4] The use of matching grants might be one way to assure the district's commitment and its belief in the centrality of the project.

Appendix A

RESEARCH DESIGN OF CHANGE AGENT STUDY

This appendix presents a brief description of the tasks for the change agent study, as listed in Table A-1. The first sixteen tasks have been completed; Tasks 17 through 20 constitute research plans designed to study (1) what happens to innovative projects after federal funding has ended and (2) how and under what conditions innovative projects spread to other sites within or outside of districts.

Table A-1
Outline of Tasks for Change Agent Study

Task Number	
	PHASE I
1	Project summary
2	Literature review
3	Program analysis
4	Sample selection
5	Design and pretest questionnaires
6	Prepare study design; update summary report
	PHASE II
7	Conduct baseline survey
8	Preliminary data analysis
9	Subsample selection of projects for fieldwork
10	Intensive fieldwork
11	Telephone survey of SEA officials
12	Fieldwork at SEAs
13	Revise study design
14	Data analysis
15	Refine data collection plan for second year
16	Final reports and executive summary, first year
	PHASE III
17	Design, develop, and pretest survey questionnaire
17a	Design telephone screener questionnaire
18	Conduct second-year survey questionnaire
18a	Data analysis, second year
19	Conduct second-year fieldwork
19a	Comparative site visits
20	Final report and executive summary, second year

PHASE I

Task 1. Project Summary

During July 1973, we prepared an initial planning report outlining project purpose, tasks, and research approach as agreed to by Rand and USOE.

Task 2. Literature Review

We reviewed the literature on educational innovation, organizational change, and dissemination and developed working hypotheses about these processes in order to guide the design of data collection and analysis. This review and the conceptual model are reported in Vol. I.

Task 3. Program Analysis

We reviewed USOE program files and other pertinent literature, interviewed USOE program officers, prepared a typology of program variables of each of the selected change agent programs, and described major policy issues connected with each change agent program.

Task 4. Sample Selection

We selected a sample of change agent projects based on a stratification using key demographic and project characteristic variables. Details of the sampling procedure and characteristics of the survey sample obtained are reported in Vol. II, App. A.

Task 5. Design and Pretest Questionnaires

We developed and pretested questionnaires for the baseline survey. This task was conducted during the period July 15 to October 15, 1973. We developed separate questionnaires for each of the five classes of respondents with supplementary questionnaire elements provided for each of four federal change agent programs being studied. Volume II, App. A, describes the contents of the survey questionnaires.

Task 6. Prepare Study Design; Update Summary Report

We prepared a final study design detailing plans for the management of data collection, processing, and reporting functions, and also specified plans for data analysis.

PHASE II

Task 7. Conduct Baseline Survey

A baseline survey using structured questionnaires was conducted by the National Opinion Research Center during the period December 1973 and January 1974 with 1735 respondents (293 projects in 18 states) at the local level.

Task 8. Preliminary Data Analysis

We used this preliminary data analysis to provide information for fieldwork.

Task 9. Subsample Selection of Projects for Fieldwork

On the basis of preliminary data analysis, we selected 29 sites and contacted for fieldwork.

Task 10. Intensive Fieldwork

During April and May 1974, we conducted intensive fieldwork on change agent projects in 29 selected school districts. In each district a two-person Rand team spent several days interviewing district and school-level officials and collecting data on change agent projects in the district. The fieldwork focused on five kinds of projects: career education, bilingual education, reading programs, staff development, and classroom organization projects. The results of each field trip were written up as case studies and an analysis of each case study area appears in Vol. III, Apps. A through D. Rand's approach to the fieldwork is presented in Vol. III, Sec. I.

Task 11. Telephone Survey of State Education Agency Officials

We contacted 54 state officials during January and February 1974 in the 18 states of the survey sample to elicit information about project descriptions and evaluations and about SEA management styles. The results of this survey were incorporated in each of the Appendixes to Vol. III.

Task 12. Fieldwork at State Education Agencies

We visited 9 state education agencies to elicit information on state policies on project selection, technical assistance, dissemination, and priorities for educational change. The results of these visits were incorporated in each of the Appendixes to Vol. III.

Task 13. Revise Study Design

On the basis of preliminary analysis of survey and fieldwork, we revised the study design.

Task 14. Data Analysis

We analyzed data collected from survey and fieldwork, using multivariate statistical procedures. The results are reported in Vol. II.

Task 15. Refine Data Collection Plan for Second Year

We prepared a detailed plan for collecting, processing, analyzing, and reporting data pertaining to Phase III, the Title III and Title VII continuation study.

Task 16. Final Reports and Executive Summary, First Year

We prepared final reports and an executive summary that presented empirical analyses. These analyses were reviewed and synthesized in Vol. IV, which also offers tentative policy implications.

PHASE III

Task 17. Design, Develop, and Pretest Survey Questionnaire

We will develop and pretest questionnaires designed particularly to find out about the continuation and dissemination of innovations that had been supported under Title III and Title VII. Survey questionnaires will be designed to be administered to teachers, principals, project directors, and superintendents. The survey sample will consist of Title III and Title VII projects that were in their last year of federal change agent funding during the 1973-74 school year or the 1974-75 school year and that were in Rand's first-year sample. The eligible pool of projects is 155 Title III projects and 33 Title VII projects. From this pool, approximately 100 projects will be selected for inclusion in the survey. The design and pretesting of the survey will begin June 1, 1975, and the questionnaires will be completed by September 15, 1975. .

Task 17a. Design Telephone Screener Questionnaire

We will design and develop a telephone questionnaire of administrative officials of post-federal funding Title III and Title VII projects. This instrument will elicit preliminary information on continuation that will be used for fieldwork and site selections. The telephoning will begin in March 1975 for the first cohort and in September 1975 for the second cohort, if necessary.

Task 18. Conduct Second-Year Survey Questionnaire

We will conduct a survey at the local level of participants in Title III and Title VII projects whose federal funding has ended. Approximately 800 teachers, 200 principals, 100 project directors, and 100 superintendents will be respondents for mostly close-ended questionnaires in approximately 100 districts. The survey will be administered during November and December 1975. Rand will subcontract the survey administration work, as it did for the first-year survey for which NORC was the subcontractor.

Task 18a. Data Analysis, Second Year

We will analyze data collected from telephone and survey questionnaires using first-year data as a baseline. Data analysis will be conducted throughout most of the contract period with several periods of intense activity. During May and June 1975, the first year's data base will be analyzed to focus on the continuation question and to prepare information for mail questionnaire design and processing. After receipt of responses from the telephone questionnaire in April and September 1975, these new data will be analyzed to gain a comprehensive view of continuation in the Title III and Title VII sample and to prepare information for site selection for fieldwork and the survey. From January to April 1976, the data from the survey will be processed and analyzed using the data and the findings from the first year as a point of comparison so that changes in project focus, methods, activities, and behavior may be assessed.

Task 19. Conduct Second-Year Fieldwork

Teams of Rand staff will conduct field visits to Title III and Title VII projects no longer receiving federal funds. These visits will include six Title III sites and six Title VII sites. Four sites will be visited in depth during the spring of 1975; eight sites will be visited more briefly during the spring and fall of 1975. The emphasis of the early fieldwork will be on developing hypotheses about continuation and intra-district dissemination and particularly the role of the district in these issues. These hypotheses will serve as the basis for questionnaire design. The later fieldwork will be used for survey validation purposes. Insofar as possible, the sites visited will be those in which the first year's fieldwork took place.

Task 19a. Comparative Site Visits

We will visit nonsample sites that use USOE's Project Information Packages (PIPs) and/or NIE-sponsored Wisconsin Individually Guided Education (IGE). The purpose of this task is to observe (at approximately two sites) these two classes of innovations, which are of concern to federal policymakers, in order to compare them with other innovations in the Rand sample. Such comparisons will provide the Rand staff with a more informed basis for reaching policy conclusions at the end of the study.

Task 20. Final Report and Executive Summary, Second Year

We will prepare a final report and executive summary which addresses in particular the question of how federal policy can help local districts continue innovations. The completion date for the final report and executive summary is September 15, 1976.

Appendix B

CHANGE AGENT PROGRAM GUIDELINES AND MANAGEMENT STRATEGIES

This appendix sketches relevant elements of the federal change agent program guidelines and management strategies. Since the role of the state education agency (SEA) in the four programs introduces another possible source of variability, this appendix outlines the function and responsibilities of both the SEA and the USOE for each program.

TITLE III OF ESEA

Title III was the first major USOE program to provide funds to local school districts for innovation. Since the authorizing legislation places no restrictions on educational areas in which projects can be funded, Title III provides a broad program of support for local innovation.

The goals of Title III are to stimulate and assist in the development of model elementary and secondary school programs through grants to local districts, and to support the spread of these models to other schools. Grants are awarded on the basis of competitive proposals submitted by LEAs. Title III is also intended to give school districts experience in managing innovation and encourage them to undertake locally funded efforts to innovate.

When first authorized in April 1965, Title III was a Commissioner's program; funds were managed by USOE and went directly from USOE to local districts. Two years later, Congress amended Title III to give the states responsibility for management of Title III funds.

The State Plan Program

The 1967 amendments to Title III underwrote a great expansion in SEA staff and in the Title III program as a whole. SEA staff working on Title III have increased from the 50 full- and part-time persons working in 1967 to over 450 full-time and 483 part-time people today.

The 1967 amendments also required that states set forth a plan to be reviewed and approved by the Federal Title III officials for spending their allotment of Title III funds. The federal office was empowered to withhold up to 50 percent of a state's allotment until a satisfactory plan was submitted.

The first official guidelines for the State Plan program were issued in the fall of 1971. These guidelines specified criteria for the states to follow in designing a Title III management plan that would be evaluated by the federal State Plans Branch. The guidelines outline seven main components for which the SEA was responsible:

- Educational needs assessment
- Project development

- Selection and funding of model projects
- Project and program evaluation
- Validation
- Dissemination
- Adoption

The State Plan strategy also included criteria for organizing Title III at the state level, notably the creation of State Advisory Councils and provision for professional staff development.

Section 306

In 1970-1971, three years after the conversion of Title III to the State Plan program, Congress re-established a Commissioner's program in Title III by amending the legislation to establish the Section 306 program. Beginning in FY 1971, the authorization provided that at least 15 percent of Title III funds be allotted USOE, with the remaining 85 percent allocated to the states. The Section 306 program has the same broad legislative intent as the original Title III program and has been similarly managed.

Budget

Congress has always appropriated more money for Title III than for other change agent programs. Local projects are typically funded for three years. Title III appropriations have been about $150 million a year, which is about twice the current budget for the largest of the other change agent programs (Title VII, Bilingual program). The appropriations for the Title III budget reached a peak of almost $190 million in 1968, after a rapid increase from $75 million in the first year. After 1968, Title III appropriations fell back and stabilized at a level of about $150 million until FY 1975, when they were reduced to $120 million. The current appropriation is about one-third of the authorized level. The Title III legislation allocates the funds among states by formula, specifying that states should receive $200,000, plus an amount in proportion to the school-age and total population of the state.[1]

TITLE VII, BILINGUAL EDUCATION PROGRAM

The Bilingual Education program was enacted in 1968 as an amendment to ESEA. The legislation recognizes "the special educational needs of the large numbers of children of limited English-speaking ability in the United States," and authorizes bilingual projects in local districts to meet these needs. More than any other program in the change agent study, the Bilingual program aims at public acceptance of a fundamentally new concept in public education; as a result, it has been marked by turbulence and conflict.

Guidelines

USOE spent the first five years (1968-1973) formulating the social role and

[1] U.S. Congress, PL 89-10, Sec. 302(a) (2).

objectives of bilingual education, developing curricula for different languages and grade levels, providing in-service training for teachers, devising new assessment techniques, and stimulating the SEAs' interest by involving them in program management. Of all the programs in the change agent study, Title VII began with the fewest available resources and the least developed program strategy.

Title VII focuses on poor children between the ages of 3 and 18 and areas that need bilingual education programs. The law, however, is vague about what educational programs it envisions. In the first year of the Bilingual program, the federal program office sent grant announcements and guidelines to SEAs, which then forwarded them to districts that might qualify. Great leeway was given to LEAs so that they could focus on their own specific needs. LEAs could propose almost any education project for the target population as long as two languages were used in instruction and the history and culture of the non-English language group were taught.

The legislative language merely said that "Title VII funds are available for exemplary pilot or demonstration projects." There was little in the early guidelines to indicate that applicants would be participating in a nationwide effort to develop models of bilingual education. In later years, four components—instructional program, curriculum, community involvement, and staff development—were urged on projects. But the initial guidelines did not clearly focus or structure the program. Approximately half of the bilingual projects in the Rand sample were funded under the 1968 guidelines.

More recently, the Bilingual program office has developed a program manual that clarifies the definition of a bilingual education project and provides informal funding guidelines. After the first year, project and budget size could grow, but were limited to a vertical expansion in grade levels. For instance, if a program began with a kindergarten class in the first year, it could add a 1st grade class the second year, to allow for the development of a continuous program for the students. However, federal funds could not be used to expand the project horizontally, for instance, to two or more kindergarten classes in the second year. After the third year of vertical expansion, LEAs were expected to absorb the cost of the highest grade level participating.

State Participation

The states had no official role in managing Title VII during the period covered by this report. SEA involvement with Title VII projects varies directly with state interest in bilingual education. In states that have not needed to focus on bilingual education, responsibility for Title VII programs is usually housed in some other bureau, such as Title I, migrant workers, foreign language coordinator, and so on. In states where bilingual education has been a major concern, a fully functioning Title VII staff is the rule.[2] These staffs have no formal direct authority over the funded LEAs, but they do exercise influence over Title VII programs by means of their connection with LEA officials and USOE staff. In western states, for example, Title VII is a higher priority for SEAs. Accordingly, they typically devote considerable staff time monitoring projects, making regular site visits, holding workshops, and the like.

[2] The information about the operation of SEAs was derived from informal interviews with state officials.

Budget

The budget of the Bilingual Education program has risen steadily since its inception to its present level of $85 million in FY 1975, but did so only after a friendly Congress overruled administration requests to limit the program's growth. In the first year of the program, FY 1969, the program funded 76 projects in 21 states, with the $7.5 million appropriation. Most of the projects were in California and Texas, and by far the largest number included Spanish-speaking children. Most projects had budgets exceeding $100,000 and, following the legislation, were sponsored by a LEA, a group of LEAs, or a LEA in conjunction with a college or university. The regulations limited projects to a maximum of five years of funding.

After 1969, the proportion of grants to California and Texas dropped dramatically as the program grew and tried to spread to new areas. Legislation and program policy have encouraged more language groups to participate in the projects.

VOCATIONAL EDUCATION, PART D

The Vocational Education, Part D, program was enacted in 1968 as part of the comprehensive amendments to the Vocational Education Act of 1963. The goal of the Part D program is "to stimulate new ways of bridging the gap between school and earning a living for young people" through providing grants to local districts for exemplary career education projects. Each project was expected to develop a plan that incorporated four elements:

1. Broad occupational orientation in elementary and secondary schools to increase student awareness of the range of career options open to them.
2. Work experience and cooperative educational studies.
3. Specific training in job entry skills.
4. Intensive occupational guidance and counseling during the last years of school.

These goals are quite similar to what was later embodied in the concept of career education.

State Participation

Half of the Part D program funds are managed by the states and half by USOE. The federal program office wanted the federally managed projects to provide examples for state and local educators, to emulate or modify, using state or local funds.

The federal portion of the Part D program encouraged proposals by an announcement sent to the executive officers of the state boards for vocational education and the state directors of vocational education. They, in turn, publicized the program and solicited proposals from local educational groups. On request, the federal program office sent a prospective applicant a manual on how to prepare a proposal, the program regulations, a booklet on exemplary vocational education programs, and a brief bibliography of previous research put out by the Educational Resources Information Center (ERIC). The manual and regulations were purposely vague to allow local groups to formulate their own ideas within the parameters set up by the policy paper. No planning grants were given, and applicants were required

to develop complete 36-month operating plans as their proposals.[3] DHEW Secretary Finch decided to bypass this process in the case of 20 projects for Model Cities programs in specified cities. In these 20 cases, the Model Cities program planners were essentially given a grant and asked to write an operational plan for it.

Beyond requiring that SEAs use funds to support exemplary projects within the categorical purposes of the legislation, Part D guidelines do not dictate state management strategies, and the federal program office has no supervisory power over the SEA. Thus, SEA administration of Part D funds varied greatly. For example, SEAs had various strategies for selecting and funding their projects. A number of states funded the same projects selected by the federal program office. Some states elected to fund their own large projects, comparable in size to the federal Part D project. Other states funded three or four smaller projects. One state funded hundreds of mini-grants.

In states where a number of proposals were received, different techniques were used to select those that would be funded. In one state, staff members selected projects that "they feel will be the best" without any formal attempt at competitive ranking. In another, a unit outside of the regular vocational education staff ranked each of the proposals, using a standard rating form. The vocational education staff then funded the projects in the order of ranking. In one state, the SEA staff exercised the initiative in getting projects started. Those LEAs that wanted Part D funds notified the SEA of their interest. The SEA staff then presented the LEAs it selected with the particular projects it wanted developed.

The degree of SEA management of local projects also varied considerably, apparently as a direct result of the interest that the SEA had in any given project. In states where only a few projects—all of particular interest to the state—were actually funded, project monitoring was likely to be intense. In states funding a large number of projects, there was only token monitoring with only one or two visits a year.

SEA dissemination strategy also seemed to vary with its funding strategy. States that funded only a few carefully developed projects were likely to be interested in developing high-quality curriculum packages or exemplary project models, which could be applied in other LEAs. However, states that attempted to fund many projects, in order to involve as many LEAs as possible, devoted less attention to developing exemplary packages, and spent most of their effort on simply promoting the career education cause.

Budget

The Part D program has been funded at a stable level of $16 million—far below its $75 million authorization level. The legislation requires that the Commissioner of Education allocate $200,000 to each state. In addition, he is required to allocate the remainder of the appropriation to the states in proportion to the population in each state between the ages of 15 and 19. The Commissioner and each SEA then divide the sum allocated to each state in half and administer the halves independently.

[3] Applicants sent proposals simultaneously to USOE and to the state board of education. The states had 60 days to reject any proposal sent to them. From the remaining proposals, the federal program office staff and 16 outside reviewers selected the grantees in each state.

In FY 1970, the Part D program funded its first round of projects. The federally administered Part D program funded one project in each state for a maximum of three years with budgets generally between $100,000 and $150,000 per year. The federal contribution to the budgets remained constant in each of three years, and grantees were not required to provide any matching funds. However, they were required to state in their proposals how they expected to finance the projects after the expiration of the federal grant. Because the level of funding has remained stable, the program initiated few other new projects until the expiration of the first-round projects in FY 1973.

RIGHT-TO-READ

The Right-To-Read program, under the authority of the Cooperative Research Act, has developed a demonstration strategy for improved reading practices in the schools.[4] Right-To-Read designed a prototype problem-solving approach as a model for local districts to use in changing their reading programs at the school level. Right-To-Read supports a number of projects in local districts to demonstrate the approach. These projects, the first activities funded by Right-To-Read, were the ones we investigated for the change agent study.

Guidelines

The Right-To-Read local implementation strategy, called the "School-Based Plan of Action," prescribes the kind of innovation that a school district is expected to undertake, a planning process, and organizational guidelines. The key elements of the Plan of Action are:

- Project schools should implement some form of the *diagnostic/prescriptive approach to reading* based on teaching by objectives that allows flexibility in the actual choice of curriculum and instructional methods.
- Project schools should attempt a *total approach* to reading improvement. Rather than changing one or two components of the school reading program, the program advocates a whole series of interrelated changes, such as introducing new instructional methods, new curriculum materials, parent involvement, a reading center, and specialized staff.
- In each school all teachers and students, whether or not they have severe reading problems, should be involved. This is called the *whole school* concept.
- In each school, the *principal should be the project director* and should be fully responsible for project decisionmaking and management.

[4] Two additional components of the Right-To-Read program were not included in the change agent study:

1. Community-based projects.
2. Right-To-Read works with the SEAs to coordinate existing state and federal reading improvement funds and to develop the SEAs' capacity for training local educators in methods of planning and implementing reading improvement programs. Right-To-Read provides the states with technical assistance, and a small grant of funds for the administration and conduct of training programs for local educators.

- Each school should appoint a *Unit Task Force* consisting of a central office staff member, the principal, two teachers, two parents, and, optionally, the school librarian to plan the project and oversee implementation.
- Each project school should decide on its own reading improvement program and plan it by following an *11-step planning process kit* designed by Right-To-Read staff. This planning process begins with a needs assessment (which has also been laid out in a kit form) and includes steps to select project objectives, instructional materials, diagnostic instruments, instructional components, personnel, in-service training, and the project budget.
- Each project should emphasize *staff development* by spending 85 percent of the total budget on in-service training and other training activities.

In addition, Right-To-Read provided each project with technical assistance from technical assistance teams located at five sites across the country. Members of these teams visited projects periodically to help with planning, in-service training, and problem solving. Team members were specifically trained in the 11-step planning process and were supposed to work closely with projects during this phase of activity.

State Participation

Although the states are involved in other components of the Right-To-Read effort, management of the Right-To-Read demonstration school projects bypasses the states entirely.

Budget

The funding of the Right-To-Read program has remained stable at the relatively low level of $12 million. A portion of these funds has been spent on projects in both local school districts and communities to generate model reading programs that will be useful demonstration sites for SEAs and LEAS developing their own reading improvement programs. The school district projects are of two types: school-based projects, which are three-year grants of approximately $40,000 per year to a single school in selected local districts; and large-city projects, which are three-year grants of $100,000 per year to groups of several schools in each of the 21 largest cities in the country.

Appendix C

COMPARISON OF PROGRAM EFFECTS ON IMPLEMENTATION DIFFICULTIES AND PROJECT OUTCOMES

Our evidence, as discussed in Sec. IV, indicates that the federal change agent programs had approximately equal and relatively secondary effects on implementation and continuation, because the policy common to these programs had limited influence on the critical internal factors that primarily determine how projects were implemented and incorporated. In short, each federal program could affect the course of the innovative process and its outcomes only at the margin. Within the latitude possible for marginal effects, the differences in management strategies of the programs appeared to be related to significant but statistically small differences in the projects' difficulties during implementation and in their "outcomes."

COMPARISON OF PROGRAMS ON DIFFICULTY OF IMPLEMENTATION

Our research found that major problems in implementation stemmed from two sources. First, innovation was often a disruptive process. Problems arose that reflected inexperience of project participants in planning for change and adapting to its demands.[1] Second, projects encountered difficulties in conforming to the selection mechanisms, administrative guidelines, and substantive priorities of the federal programs. Comparing the relative importance of particular implementation problems for the different change agent programs, we found the following patterns:[2]

State Title III

State Title III projects (which are locally conceived and awarded on a highly competitive basis) avoided severe problems resulting from *unclear* or *unfamiliar techniques*, perhaps because their techniques were locally chosen. By contrast, *unclear goals* was a significant source of difficulty for teachers in State Title III projects. The initial goals of these projects tended to be ambitious or ambiguous. The ambiguity may stem from the competitiveness of Title III awards, which may inadvertently encourage broad "grantsmanship" claims in proposal writing. The overly ambitious

[1] Our analysis grouped implementation problems into four types: (1) Those associated with the *substance* of the project's goals or educational methods—namely, goals not sufficiently defined (i.e., lack of *specificity* of goals), complicated or unclear techniques (which is a dimension of *complexity*), and teacher unfamiliarity with materials or methods (which is dependent on the relative *newness* of the innovation); (2) problems resulting from deficiencies of the *prior plans* for implementation—namely, inadequate space, equipment, or materials; unanticipated requirements; unrealistic goals or schedule; or teachers already overloaded with other commitments; (3) problems arising in the given *institutional setting*—namely, leadership or management problems, faculty or staff resistance to the project, and parental or community opposition; and (4) problems arising from reduction in *funding*. Volume II, Table 9, presents a catalogue of implementation problems along with frequency of response.

[2] See Vol. II, Table 10.

goals may also reflect the opportunity that Title III provides for districts to take a chance on highly innovative and complex projects. But unclear goals can later create confusion and conflict. Title III gives school districts great freedom of action, which can be both a help and a hindrance to successful innovation: It may reduce potential implementation problems arising from the selection of unclear techniques, but it may increase future stress if goals are overly ambitious or poorly defined.

Federal Title III, Sec. 306

Although both state-administered and federally administered Title III programs allow LEAs to formulate projects for a broad range of objectives, Federal Title III projects were more likely to involve large-scale administrative changes in school organization, such as the introduction of planning, programming, and budgeting principles.[3] The Federal Title III program has been announced every year starting in 1970 by means of letters from USOE to superintendents that indicated the approximate grant size (e.g., in 1971, the USOE announced that it planned to award grants averaging $150,000 for each of three years). These guidelines may have encouraged projects of considerable scope, as well as projects favored by the superintendent's office; in short, they may have provided incentives for "top-down" innovations.[4] In any event, the problems resulting in significant implementation difficulties for Sec. 306 projects were those associated with top-down innovations—problems of complicated or unclear techniques and problems of teacher overload.

Title VII

Bilingual projects were the hardest to implement. Inadequate materials, teacher overload, and unrealistic goals or schedules seemed to be the main obstacles. These problems, particularly that of obtaining appropriate bilingual curriculum materials and staff, may stem from the relative newness of bilingual education. But they also may reflect the complex and highly ambitious changes that some bilingual projects attempted.

Vocational Education, Part D

The analysis showed that only two problems cited by teachers were significantly related to the difficulty of implementing career education projects—unclear techniques and parental or community opposition. The fieldwork conducted for career education projects suggests that these projects rarely enjoyed serious support from the host district.[5] Since little proposal development was required by the sponsoring federal program, many districts tended to treat career education projects as grants in aid. Moreover, many projects were initiated as a result of minority group demands (in the Model Cities cases) or the desires of a small group of professionals to increase career activities. Typically, neither situation was conducive to gaining district-level support for the resulting projects.

[3] See Vol. II, Table 6.

[4] Conversely, State Title III projects offered smaller grants and greater spreading of resources among school districts, allowing for the funding of more "bottom-up" projects of the type initiated by teachers in a single school.

[5] See Vol. III, App. D.

In this unstable situation, attempts to innovate may be vulnerable to dissension and underdeveloped techniques. Or, projects may not work out in part because teachers lack incentives to try to make them succeed. This failure may have nothing to do with career education, but only with the situation in which such projects were initiated. There is an odd corollary to this vulnerability: When such problems were not encountered, project teachers did not report implementation difficulties simply because little change was demanded of them.

Right-To-Read

In the Right-To-Read projects—but for no other programs—teacher unfamiliarity with materials was a serious source of difficulty. Right-To-Read demonstration projects prescribe broad management strategies and strongly encourage diagnostic/prescriptive approaches to reading. The way LEAs dealt with these guidelines may have determined how difficult it was to implement the projects. If teachers objected to, failed to understand, or could not use the complex new reading curricula, instruments, and record-keeping devices, the project could become extremely frustrating.

Second, in Right-To-Read projects, lack of prior planning was quite strongly related to implementation difficulties. Unanticipated requirements, inadequate materials, and teacher overload were also sources of difficulty. This suggests that the rational planning model implicit in these projects may inhibit the flexibility necessary to deal with day-to-day problems. Finally, parental or community opposition reportedly could substantially impede implementation of Right-To-Read projects. Reading instruction is a central or basic educational mission of schools and, therefore, a very salient issue for parents. If they disapprove of or misunderstand the Right-To-Read approach—perhaps interpreting it as remedial in intent—teachers may encounter stiff and continuing resistance to the project.

* * *

In summary, the characteristic difficulties associated with implementing different federal programs demonstrate that the management strategies had subtle influences beyond the initiation stage. Insofar as federal programs affect initial project design, their different selection mechanisms, guidelines, and expectations also create specific barriers that local innovations must surmount.

COMPARISON OF PROGRAM EFFECTS OF PROJECT "OUTCOMES"

As Sec. IV discussed, we directly compared the implementation outcomes and expected continuation of projects funded by the different federal programs. We did so first by simply computing the means of sample projects for each of the various outcome measures or dependent variables for each federal program; then we repeated these comparisons statistically allowing for variation of the educational methods used by projects within each program; finally, we compared the mean effect of programs controlling for other project and institutional characteristics. The major result was that programs differed only marginally from each other on implementation outcomes and expected continuation. Secondary findings involve the signifi-

cant but statistically small or marginal differences in project effects between programs.

Several marginal differences between programs could be discerned by the simple comparison of means of project outcomes for each program. One significant difference involved career education. Projects funded by Vocational Education, Part D had the highest average reported "percentage of goals achieved" and Title III the lowest, although the difference between the two is barely statistically significant. Yet, career education projects were, on the average, least likely to result in teacher change; moreover, they were reportedly the least difficult to implement, particularly when compared with the program with the most difficult projects, Bilingual. These gross comparisons suggest that career education projects achieved the highest percentage of their goals because they were not attempting major innovations. Most such projects simply added career enrichment materials to the curriculum. Perhaps this explains why career education projects, even though they were the "most successful," were the least likely to be continued.[6]

In contrast, Title VII bilingual projects were viewed as the most difficult to implement and as being the least successful in achieving their goals. Nonetheless, they were at least as likely to be continued as the average of projects funded by the other programs. Our field studies suggest an explanation for this apparent disparity. Local constituencies had mobilized support or created demand for bilingual education and thus produced pressure for a local and state commitment to deal with their problems, no matter how difficult the projects may have been to implement effectively.

Another marginal effect involved Right-To-Read. Superintendents reported that Right-To-Read projects were more likely to be continued than career education projects. Both the survey analysis and the fieldwork suggest that projects with educational goals that are perceived as more central or important to district educational concerns are more likely to be continued. Thus, Right-To-Read projects concerned with the core task of reading may have been more strongly supported by school districts than enrichment-type career education projects.

These gross comparisons are averages that may mask project variations within programs. Therefore, we also compared the effects of various educational treatments on project outcomes within the same federal programs and found once again that program differences account for little of the variation in project outcomes.[7]

However, the analysis does reveal interesting patterns for State Title III, which funds the most diverse range of projects. For State Title III, the use of classroom organization methods was positively related to teacher change, to difficulty of implementation, and to percentage of goals achieved. Title III enrichment methods, in contrast, were negatively related to perceived success and to fidelity of implementation, probably because Title III enrichment projects tended to be diffuse. Intensive traditional staffing on Title III projects was significantly related to increased difficulty of implementation, but also positively related to the amount of teacher change. Nonetheless, intensive traditional staffing did not increase the percentage of goals

[6] See Vol. II, Tables 17 and 20.

[7] The educational treatments were diverse across the Rand sample. To deal with this diversity, we developed analytical measures that reduced the many different educational methods employed by change agent projects to five common factors. See Vol. II, Sec. II.

achieved on Title III projects. Schoolwide administrative changes seemed to increase difficulty of implementation but not to affect other outcomes.

These findings can be interpreted by recalling the nature of the Title III program. Title III projects were locally conceived and competitively chosen; they therefore included a wide mixture of projects, ranging from straightforward enrichment activities to complex attempts to alter classroom organization. Similarly, they included the diverse range of motivation for initiating change agent projects, from opportunism to problem solving. The Title III problem-solving projects that emphasized sustained efforts in classroom innovations were difficult to implement, but were more likely to be successful in terms of both teacher change and percentage of goals achieved. In contrast, the numerous Title III opportunity-based projects that engaged, for example, in simple enrichment did not appear to have produced significant change nor to have achieved their goals. The diversity in the scope of Title III projects appears to have been matched by uneven outcomes. In short, the Title III management strategy may have yielded high risks, but it also had high returns.

School districts may also have viewed Title III in those terms. Districts were more likely to continue Title III projects with major changes in classroom organization than other Title III projects, even though the classroom organization projects were harder to implement and perceived as no more successful, at least in the short run. This finding also suggests that classroom organization change projects usually had district support and were thus likely to be continued whether or not they were implemented successfully during the period of temporary federal funding.